النيماتودا المصاحبة للنباتات في البلدان العربية

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الملخص

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أظهـر هذا العمل التجميعي وجود 216 نوعاً تنتمي إلى 65 جنساً من النيماتودا المصاحبة للنباتات في الوطن العربي. بعض الأنواع أو الأجناس المتطفلة على النـباتات (Plant- Parasitic Nematodes) وجـدت فـي بلد عربي واحد فقط، مثل: *Hirschmaniella oryzae*، *Nacobbus aberrans*، *Nothocriconemella mutabilis*، *Pratylenchoides* spp.، *Pseudhalenchus anchilisposomus*، *Radopholus similis*، *Rotylenchoides variocaudatus*، *Tylencholaimus teres*، *Amplimerlinius* spp.، *Basiria* spp.، *Bidera latipons*، *Coslenchus* spp.، *Crossonema* spp.، *Gracilacus* و *Irantylenchus clavidorus* (مصـر)؛ *Nothocriconema* spp.، *micoletzky* و *Rotylenchus* spp. و *Trichotylenchus* spp. (الأردن)؛ *Dolichodorus* spp. (ليبيا)؛ *Boleodorus* spp. (المغـرب)؛ *Belonolaimus longicaudatus* و *Subanguina* spp. (السـعودية)؛ *Paratrophurus lobatus* (السـودان)؛ *Zeldia thorne* (تونس). وظهرت أجناس أخرى في بلديـن عربييـن، مـثال ذلك: *Criconemoides* spp. (مصر والأردن)؛ *Merlinius* spp. (الأردن والمغرب)؛ *Criconema* spp. (الأردن والسعودية). كما وجدت بعـض الأجـناس فـي ثلاث بلدان عربية مثل: *Hemicriconemoides* spp. (مصر، الأردن، والسعودية)؛ *Macroposthonia* spp. (الأردن، المغرب، والسعودية)؛ *Merlinius* spp. (مصـر، الأردن، والمغرب)؛ *Psilenchus* spp. (مصر، الأردن، والسودان). إلاّ أنّ أجناساً أخرى من نيماتودا النبات كانت أكثر شيوعاً وانتشاراً فـي عدد أكبر من البلدان العربية أو في غالبيتها، مثل: *Anguina* spp.، *Aphelenchoides* spp.، *Aphelenchus* spp.، *Criconemella* spp.، *Ditylenchus* spp.، *Helicotylenchus* spp.، *Heterodera* spp.، *Hoplolaimus* spp.، *Longidorus* spp.، *Meloidogyne* spp.، *Paratylenchus* spp.، *Pratylenchus* spp.، *Rotylenchulus* spp.، *Trichodorus* spp.، *Tylenchorhynchus* spp.، *Tylenchulus* spp.، *Tylenchus* spp. و *Xiphinema* spp.

كلمات مفتاحية: البلدان العربية، توزيع، حصر، قائمة مراجعة، مصاحبة، نيماتودا النبات.

المقدمة والمنهجية

تنتشـر النـيماتودا انتشـاراً واسعاً في الأقطار العربية المختلفة، وتهـاجم مـدى واسعاً من النباتات بما في ذلك محاصيل الخضروات، الأشـجار المـثمرة والمحاصـيل الحقلية، بالإضافة إلى نباتات الزينة وأشجار الغابات.

يُعـتقد بـأنّ إعـداد هذا العمل، الذي يتضمن تجميع المعلومات الخاصـة بأجناس وأنواع النيماتودا ووضعها في قوائم- مراجعة، هو الأول مـن نوعـه. وقـد جمعت المعلومات من المصادر المتاحة في المنطقة، ويرجى أن تعمل المعلومات الجديدة والتي يمكن إضافتها من المراجع الجديدة أو التي لم يتم الإطلاع عليها سابقاً، على إعداد خرائط متخصصـة لنـيماتودا النبات المختلفة في كافة أنحاء الوطن العربي، ولكـن لـن يكون ذلك ممكناً دون مساعدة ومشاركة فعلية من الباحثين المعنيين.

لقـد تمّ الإطلاع على أكثر من 150 مرجعاً منشوراً حول وجود نيماتودا النبات في الأقطار العربية. شملت المراجع المنشورة كل من: الـبحوث العلمـية المنشـورة في الدوريات العلمية، وقائع المؤتمرات والورشـات العلمـية الإقليمـية والدولـية، والنشـرات العلمـية للجامعـات.....الخ. وقد جرى تجميع هذه المعلومات في قوائم حسب أجناس وأنواع النيماتودا ونباتات العوائل.

مـن الواضح أنه لا بدّ من المشاركة والتعاون الفعّال بين العلماء المعنييـن لإستكمال هذا الجهد. وحيث أنّ قائمة المراجعة المقدمة هي قائمـة أولـية وغير متكاملة، يأمل المعدّان الحصول على أية مراجع إضافية تجعل من هذا العمل أكثر تكاملاً وتحديثاً.

المناقشة

يعتـبر انتشار النيماتودا في الوطن العربي مُعبّراً عن الإختلافات والتبايـن فـي ظروف البيئة وعوامل التربة. كذلك فإنّ زراعة بعض المحاصـيل فـي بعـض البلدان يتيح المجال لوجود أنواع معينة من النيماتودا بعينها. فالنيماتودا *Ditylenchus angustus* وجدت في مصر والسودان على الأرز، والنيماتودا *Hirschmaniella oryzae* في مصر فقـط على محصولي القطن و الأرز. كما وجدت نيماتودا حبوب القمح *Anguina tritici* في كلٍ من العراق، الأردن، سورية والسعودية على القمـح تحـت ظـروف مواتـية. إلاّ أنّ النيماتودا *Belonolaimus longicaudatus* والتـي وجـدت فـي السعودية فقط، فربما كان ذلك لظـروف مناسبة من المناخ والتربة الرملية، كما أنّ احتمالية نقلها الى السـعودية مـن السـهول الساحلية للمناطق الجنوبية للولايات المتحدة الأمريكية تعتبر واردةً جداً.

وجـدت ثلاثـة أنـواع من *Ditylenchus* في الأقطار العربية، هـي: *D. dipsaci* في العراق، الأردن، المغرب، السعودية، وسورية؛ *D. angustus* فـي مصـر والسودان، بينما *D. myceliophagus* في السودان فقط. كل هذه الأجناس بحاجة إلى رطوبة عالية وحرارة دافئة.

أظهـر هـذا الإستقصاء وجود 25 نوعاً من *Helicotylenchus* spp. فـي الـبلدان العربية، منها سبعة في مصر فقط: *H. agricola*،

H. cavenses، *H. dihysteroides*، *H. erythrinae*، *H. hydrophilus*، *H. mangiferensis* و *H. microlobus*؛ وستة في الأردن فقط: *H. abunaami*، *H. crenacauda*، *H. minzi*، *H. pteracercus*، *H. truncates* و *H. vulgaris*؛ وثلاثة في السودان فقط: *H. babikeri*، *H. concephalus* و *H. digitatus*؛ بينما *H. varicaudatus* بُلّغ عن وجودها في سورية فقط. أمّا النيماتودا *H.aegyptiensis*، *H. exallus* و *H. microcephalus* في مصر والسودان؛ بينما *H. tunisiensis* في الأردن والمغرب. إلاّ أنّ النيماتودا *H. digonicus* قد وجدت في مصر، الأردن، والسودان، بينما *H. dihystera* فقدأبلغ عن حدوثها في كل من مصر، العراق، الأردن، ليبيا، السعودية وسورية؛ *H. pseudorobustus* في مصر، العراق والأردن ؛ والنيماتودا *H. multicinctus* في الأردن وعُمان والسودان.

وُجدت تسعة أنواع من النيماتودا الحوصلية *Heterodera* spp. في بعض البلدان العربية، هي: *H. cajani*، *H. daverti*، *H. glycines*، *H. trifolii* و *H. zeae* في مصر؛ *H. schachtii* في الأردن؛ *H. ciceri* في سورية؛ *H. goettingiana* في الأردن وسورية، بينما ظهرت *H. avenae* في كل من مصر، المغرب والسعودية. أمّا *Globodera rostochiensis* فقد وجدت على البطاطا/البطاطس في جبال لبنان العالية.

أمّا بالنسبة لنيماتودا تعقد الجذور *Meloidogyne* spp.، فقد تبين وجود ستة أنواع في الأقطار العربية المختلفة، حيث وُجد النوعين *M. javanica* و *M. incognita* في مصر، العراق، الأردن، ليبيا، المغرب، عُمان، السعودية، السودان، وسورية، ولكن في اليمن وُجد فقط النوع *M. incognita*، والنوع *M. javanica* في الإمارات العربية المتحدة. أما النوع *M. arenaria* فقد وُجد في كل من مصر، العراق، ليبيا، السعودية، السودان، سورية واليمن. كذلك، فقد تبين حدوث أنواع أخرى من الجنس *Meloidogyne* في بعض البلدان، مثل *M. artiella* في سورية؛ *M. hapla* في مصر،العراق وليبيا؛ *M. naasi* في ليبيا. يبدو أنّ النوعين *M. hapla* و *M. naasi* وهما من الأنواع التي تعيش في المناطق الباردة، ربما تواجدت في المناطق العالية والباردة نوعاً ما في كل من ليبيا والعراق.

أظهر الإستقصاء وجود 18 نوعاً من *Pratylenchys* spp. تنتشر على مدى الوطن العربي، وهي *P. goodeyi*، *P. minyus*، *P.musicola* في مصر؛ *P. mediterraeus* و*P. sefaensis* في الأردن؛ *P. jordanensis* في عُمان؛ *P. pratensis* في سورية. كما ظهر *P. coffeae*، *P. crenatus* و *P. scribneri* في مصر والأردن؛ *P. brachyurus* في مصر وعُمان، بينما ظهر *P. sudanensis* في الأردن والسودان. إلاّ أنّ *P. delattrei* فقد وُجد في الأردن وعُمان والسودان؛ *P. penetrans* في مصر، الأردن، المغرب والسعودية؛ *P. zeae* في مصر، العراق، الأردن والسعودية، بينما وجد *P. thornei* في مصر، الأردن، ليبيا، المغرب وسورية.

وجدت نيماتودا الحمضيات/الموالح *Tylenchulus semipenetrans* في كل من مصر، العراق، الأردن، ليبيا، السعودية، سورية وتونس؛ ومن المتوقع أن تكون هذه النيماتودا منتشرة حيث تتواجد بساتين الحمضيات في كافة الأقطار العربية.

إنّ وجود بعض أنواع النيماتودا الناقلة للفيروسات النباتية مثل *Trichodorus* spp. في مصر، الأردن، ليبيا والسعودية؛ *Paratrichodorus* spp. في مصر و الأردن ؛ *Longidorus* spp. في مصر، العراق، الأردن، ليبيا والسعودية؛ *Paralongidorus* spp. في مصر، إنّ وجودها يبين أهمية إنشاء برامج تعاضدية لمكافحة النيماتودا نفسها وحماية النباتات من الإصابة بالأمراض الفيروسية.

يُظهر هذا الإستقصاء بوضوح، مدى التباين في حجم ونوعية المعلومات المتوفرة عن نيماتودا النبات في البلدان العربية المختلفة. وهذا يعكس مدى الإهتمام في الموضوع وضرورة توفير الباحثين والفنيين المختصين في مجال نيماتودا النبات، وكذلك أهمية توفير المختبرات المؤهلة بتصنيف النيماتودا وبخاصة فيما يتعلق باستعمال الميكروسكوبات المتقدمة واستخدام أساليب التكنولوجيا الحيوية الحديثة.

جدول 1. النيماتودا المرافقة للمحاصيل الزراعية.

Nematode/Host	Country	References
Aorolaimus israeli		
Hordeum vulgare, Triticum aestivum, T. durum	Morocco	44
***Aphelenchoides* spp.**		
Arachis hypogaea	Sudan	150
Beta vulgaris, Cicer arietinum, Cucumis melo var. flexus, Hordeum vulgare, Lycopersicon esculentum, Pisum sativum, Solanum tuberosum, Zea mays	Saudia Arabia	25
Citrus spp.	Egypt	80
	Jordan	155
	Saudia Arabia	40
Cucerbita pepo, Hibiscus esculentus, Solanum melongena	Saudia Arabia	24
Malus sylvestris	Egypt	80
	Saudia Arabia	40
Medicago sativa	Jordan	17, 109
	Saudia Arabia	25

Table 1. Nematodes associated with crop plants.

Nematode/Host	Country	References
***Amplimerlinius* spp.**		
Brassica oleracea var. capitata, B. o. var. botrytis	Jordan	155
Vicia faba	Jordan	17, 109
A. macrurus		
Citrus spp.	Jordan	74
Citrus limon	Jordan	108
Lens culinaris, Triticum aestivum, T. durum	Jordan	17, 109
Lens esculenta	Jordan	74
Olea europaea	Jordan	74, 109
Punica granatum	Jordan	75
Anguina tritici		
Hordeum vulgare	Iraq	38, 140
Triticum aestivum	Iraq	21, 132, 140
	Saudia Arabia	24
	Syria	19
Triticum aestivum, T. durum	Jordan	17, 18, 109

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
Musa spp., *Vitis vinifera*	Egypt	80
Olea europaea, Prunus domestica	Saudia Arabia	40
Phaseolus vulgaris	Saudia Arabia	24, 150
Phoenix dactylifera	Saudia Arabia	25, 40
A. besseyi		
Oryza sativa	Egypt	80
A. graminis		
Cicer arietinum	Sudan	150
A. parietinus		
Gossypium spp.	Egypt	80
A. subtenuis		
Arachis hypogaea, Triticum aestivum	Sudan	150
Citrus spp.	Jordan	155
***Aphelenchus* spp.**		
Allium cepa	Jordan	155
	Saudia Arabia	40
Annona squamosa	Egypt	90
Cicer arietinum, Corchorus olitorius, Daucus carota, Ficus carica, Hordeum vulgare, Lens esculenta, Medicago sativa, Pisum sativum, Solanum tuberosum, Vicia faba	Saudia Arabia	25
Citrullus vulgaris	Saudia Arabia	24, 40
Citrus spp., *Malus sylvestris, Punica granatum*	Saudia Arabia	40
Musa spp., *Oryza sativa*	Egypt	80
Olea europaea	Jordan	155
	Saudia Arabia	40
Phoenix dactylifera, Lycopersicon esculentum	Saudia Arabia	25, 40
Pyrus communis	Egypt	80
	Saudia Arabia	25
Spinacia oleracea, Vigna sinensis	Saudia Arabia	24
Vitis vinifera	Egypt	80
	Libya	64
	Saudia Arabia	25
A. avenae		
Arachis hypogaea, Cicer arietinum, Medicago sativa, Pisum sativum Vicia faba, Zea mays	Sudan	150
Citrus spp.	Egypt	80
	Libya	64
	Saudia Arabia	24
Cucumis melo var. flexus, Cucurbita spp., *Hibiscus esculentus, Solanum melongena, Vigna sinensis*	Saudia Arabia	24
Lycopersicon esculentum	Jordan	155
	Saudia Arabia	24, 55
Musa spp., *Vitis vinifera*	Egypt	80
Phaseolus vulgaris	Saudia Arabia	24
	Sudan	150
Triticum aestivum	Jordan	155
	Saudia Arabia	24
	Sudan	150
Aporcelaimus mamnillatus		
Musa spp., *Vitis vinifera*	Egypt	80
***Basiria* spp.**		
Olea europaea	Jordan	76
B. kashmiriensis		
Citrus spp.	Jordan	155
Belonolaimus longicaudatus		
Phaseolus vulgaris	Saudia Arabia	24
Bidera latipons		
Triticum aestivum	Jordan	155
***Boleodorus* spp.**		
Hordeum vulgare, Triticum aestivum, T. durum	Morocco	44
***Coslenchus* spp.**		
Citrus spp.	Jordan	74
Musa cavindishii	Jordan	155
C. costatus		
Citrus limon	Jordan	109
Cucumis sativus, Nicotiana tabacum	Jordan	74
***Criconema* spp.**		
Citrus spp., *Phoenix dactylifera, Prunus persica, Punica granatum, Vitis vinifera*	Saudia Arabia	25
C. mutabile		
Musa cavindishii	Jordan	155
***Criconemella* spp.**		
Citrus spp.	Egypt	80
	Libya	60
Arachis hypogaea, Ficus carica, Malus sylvestris, Mangifera indica, Musa spp., *Oryza sativa, Prunus persica, Solanum melongena, Vicia faba, Vitis vinifera, Zea mays*	Egypt	80
C. antipolitana		
Punica granatum	Jordan	75
C. sphaerocephalum		
Phoenix dactylifera	Egypt	80
	Saudia Arabia	25
C. xenoplax		
Olea europaea	Jordan	76
Punica granatum	Jordan	75
***Criconemoides* spp.**		
Allium cepa, Beta vulgaris, Prunus armeniaca	Jordan	109
Annona squamosa	Egypt	93
C. informis		
Olea europaea	Jordan	74, 109
Vitis vinifera	Jordan	74
***Crossonema* spp.**		
Citrus spp.	Jordan	74
Deladenus saccatus		
Gossypium spp.	Egypt	80
Discolaimium cylindricum		
Vitis vinifera	Egypt	80
D. gigas		
Vitis vinifera	Egypt	80
D. mucurubanus		
Musa spp., *Vitis vinifera*	Egypt	80
Discolaimoides aruicaudatus		
Musa spp., *Vitis vinifera*	Egypt	80
***Ditylenchus* spp.**		
Allium cepa, Lycopersicon esculentum	Saudia Arabia	25, 40
Annona squamosa	Egypt	93
Arachis hypogaea	Egypt	80
	Sudan	150
Medicago sativa, Hordeum vulgare, Lens esculenta, Pisum sativum, Zea mays	Saudia Arabia	25
Olea europaea	Jordan	76
Oryza sativa	Egypt	80
Phaseolus vulgaris	Sudan	150
Phoenix dactylifera	Egypt	81
	Saudia Arabia	40
Punica granatum	Saudia Arabia	40
Solanum melongena	Jordan	109
Solanum tuberosum	Egypt	80
	Jordan	109
	Saudia Arabia	25
Triticum aestivum, Vicia faba	Saudia Arabia	25
	Sudan	150
D. angustus		
Oryza sativa	Egypt	80
	Sudan	150
D. dipsaci		
Allium cepa	Jordan	155
	Saudia Arabia	24, 25, 40
Allium sativum, Cicer arietinum	Saudia Arabia	25
Cucumis melo, Solanum melongena	Saudia Arabia	40
Malus sylvestris	Jordan	155

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
Medicago sativa	Iraq	143
	Saudia Arabia	24
Olea europaea	Jordan	76, 155
Triticum spp.	Syria	19, 106
Vicia faba	Jordan	17, 109
	Morocco	44
	Syria	19, 68, 73, 106
D. myceliophagus		
Arachis hypogae, Cicer arietinum	Sudan	150
***Dolichodorus* spp.**		
Vitis vinifera	Libya	64
***Dorylaimus* spp.**		
Solanum tuberosum	Egypt	80
D. afganicus		
Solanum tuberosum	Egypt	80
Eudorylaimus indianesis		
Musa spp., *Vitis vinifera*	Egypt	80
E. sabulopilus		
Musa spp., *Vitis vinifera*	Egypt	80
Filenchus filiformis		
Solanum tuberosum	Egypt	80
Globodera rostochiensis		
Solanum tuberosum	Lebanon	82
Gracilacus micoletzky		
Citrus spp.	Jordan	155
***Helicotylenchus* spp.**		
Allium cepa, Cucumis sativus	Egypt	80
	Jordan	109
Annona squamosa	Egypt	93
Arachis hypogaea, Brassica oleraceae var. capitata, Cucurbita spp., *Glycine max, Gossypium* spp., *Helianthus annus, Hibiscus esculentus, Lycopersicon esculentum, Malus sylvestris, Musa* spp., *Olea europaea, Oryza sativa, Saccharum officinarum*	Egypt	80
Beta vulgaris, Brassica rapa, Capsicum frutescens, Prunus armeniaca	Jordan	109
Citrus spp.	Egypt	80
	Libya	17
	Saudia Arabia	25, 40
Citrus aurantium	Yemen	16
Ficus carica	Jordan	109
	Saudia Arabia	25
Citrullus vulgaris	Saudia Arabia	40
Medicago sativa, Phaseolus vulgaris, Solanum tuberosum, Triticum aestivum, Zea mays	Saudia Arabia	25
Phoenix dactylifera	Egypt	81
	Saudia Arabia	25, 40
Punica granatum	Jordan	75
Pisum sativum, Pyrus	Egypt	80
Communis, Solanum melongena	Saudia Arabia	25
Vicia faba	Jordan	17, 109
	Syria	131
Vitis vinifera	Egypt	80
	Libya	64
	Saudia Arabia	25
	Yemen	16
H. abunaami		
Citrus spp.	Jordan	74, 155
Citrus limon	Jordan	109
Psidium gaujava	Jordan	155
H. aegyptiensis		
Citrus limon, Citrus sinensis, Psidium gaujava	Sudan	156
Saccharum officinarum	Egypt	80, 156
H. agricola		
Psidium gaujava	Egypt	80
H. babikeri		
Psidium gaujava	Sudan	156
H. cavenses		
Zea mays	Egypt	80
H. concephalus		
Citrus paradise, Vitis vinifera	Sudan	156
H. crenacauda		
Vitis vinifera	Jordan	155
H. digitatus		
Citrus limon	Sudan	156
H. digonicus		
Citrus spp.	Jordan	74
Capsicum frutescens, Citrus limon, Solanum melongena	Jordan	109
Lactuca sativa, Pinus halepensis, Vitis vinifera	Jordan	74, 109
Olea europaea	Jordan	74, 76, 109, 155
Punica granatum	Jordan	74, 75, 109
Saccharum officinarum	Sudan	130
Triticum aestivum, T. durum, Vicia faba	Jordan	17, 109
H. dihystera		
Beta vulgaris, Citrus spp., *Cucurbita* spp., *Gossypium* spp., *Mangifera indica, Solanum melongena*	Egypt	80
Brassica oleracea var. capitata, Lactuca sativa	Jordan	74, 109
Citrus spp.	Egypt	80
	Jordan	155
	Saudia Arabia	25
Lycopersicon esculentum, Medicago sativa, Phoenix dactylifera	Saudia Arabia	24
Musa cavindishii	Jordan	74, 109
	Saudia Arabia	24
Olea europaea	Egypt	80
	Libya	58
Prunus domestica	Syria	106
Saccharum officinarum	Iraq	30
Solanum tuberosum, Vitis vinifera	Egypt	80
	Syria	106
Triticum aestivum, Vicia faba	Syria	19, 106
H. dihysteroides		
Musa spp.	Egypt	80
H. exallus		
Annona squamosa	Egypt	93
Musa spp.	Egypt	80
Saccharum officinarum	Sudan	130
H. erythrinae		
Zea mays	Egypt	80
H. hydrophilus		
Citrus spp., *Musa* spp.	Egypt	80
H. mangiferensis		
Mangifera indica	Egypt	80
H. microcephalus		
Citrus spp., *Musa* spp., *Vitis vinifera*	Egypt	80
Mangifera indica	Egypt	80
	Sudan	156
Phoenix dactylifera	Egypt	80, 81
Psidium gaujava	Sudan	156
H. microlobus		
Citrus spp., *Gossypium* spp.	Egypt	80
H. minzi		
Olea europaea	Jordan	76, 109
Punica granatum	Jordan	75
H. multicinctus		
Citrus spp., *Mangifera indica, Psidium gaujava, Vitis vinifera*	Egypt	80
Lycopersicon esculentum	Jordan	155
Musa spp.	Egypt	80
	Oman	102
	Sudan	156
Musa cavindishii	Jordan	74, 109, 155

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
H. pseudorobustus		
Brassica oleracea var. capitata, Lactuca sativa, Phaseolus vulgaris, Solanum melongena	Jordan	74, 109
Citrus spp.	Egypt	80
	Jordan	74, 155
Citrus limon, Prunus armeniaca	Jordan	109
Musa spp., *M. cavindishii*	Egypt	80
	Jordan	74, 109
Olea europaea	Jordan	74, 76, 109
Phoenix dactylifera	Egypt	80, 81
Punica granatum	Jordan	75
Vitis vinifera	Egypt	80
	Iraq	145
	Jordan	151
H. pteracercus		
Vitis vinifera	Jordan	155
H. truncatus		
Olea europaea	Jordan	155
H. tunisiensis		
Cydonia oblonga, Malus sylvestris, Prunus armeniaca	Jordan	109
Hordeum vulgare,Triticum aestivum, T. durum	Morocco	44
Olea europaea	Jordan	74, 76, 109
Punica granatum	Jordan	75
H. varicaudatus		
Prunus amygdalus	Syria	106
H. vulgaris		
Olea europaea	Jordan	76
***Hemicriconemoides* spp.**		
Citrus spp., *Ficus carica*	Saudia Arabia	25
Malus sylvestris	Saudia Arabia	40
Solanum tuberosum	Egypt	80
H. cocophillus		
Citrus spp.	Jordan	74, 155
Musa cavindishii	Jordan	155
H. intermedius		
Musa cavindishii	Jordan	155
***Hemicycliophora* spp.**		
Arachis hypogaea, Citrus spp., *Helianthus annus, Mangifera indica, Pyrus Communis, Zea mays*	Egypt	80
Phoenix dactylifera	Egypt	80, 81
H. oostenbrinki		
Vitis vinifera	Egypt	80
H. similis		
Citrus aurantifolia, C. limon , C. mitis, C. sinensis	Egypt	80
H. thienemami		
Phoenix dactylifera	Egypt	80, 81
H. typica		
Citrus spp., *Vitis vinifera*	Jordan	155
***Heterodera* spp.**		
Arachis hypogaea , Daucus carota , Ficus carica, Musa spp., *Oryza sativa, Trifolium alexandrinum, Zea mays*	Egypt	80
Beta vulgaris, Brassica rapa, Spinacia oleracea	Jordan	109
Hordeum vulgare, Medicago sativa, Prunus persica, Triticum aestivum	Saudia Arabia	25
Lycopersicon esculentum	Egypt	80
	Saudia Arabia	25
H. avenae		
Hordeum vulgare	Morocco	28, 44
	Saudia Arabia	28
Triticum aestivum	Egypt	80
	Morocco	28, 41
	Saudia Arabia	25, 28, 29, 41
H. cajani		
Vigna unguiculata	Egypt	80
H. ciceri		
Allium cepa, A. sativum, Beta vulgaris, Brassica oleracea var. botrytis, B. o. var. capitata, B. rapa, Capsicum annum, Citrullus vulgaris, Cucumis melo, Cucurbita pepo, Daucus carota, Fragaria ananassa, Gossypium herbaceum, Helianthus annus, Hibiscus esculentus, Hordeum vulgare, Lupinus termis, Lycopersicon esculentum, Medicago sativa, Phaseolus vulgaris, Solanum melongena, S. tuberosum, Spinacia oleracea, Vicia faba, Zea mays	Syria	69
Cicer arietinum, Lens culinaris, L. esculenta, Pisum sativum	Syria	19, 69, 71
Vicia sativa	Syria	19, 69
H. daverti		
Phaseolus vulgaris, Pisum sativum, Trifolium alexandrinum, Vicia faba, Vigna sinensis	Egypt	113
H. glycines		
Lycopersicon esculentum, Solanum tuberosum, Trifolium alexandrinum, Vigna unguiculata, Zea mays	Egypt	80
H. goettingiana		
Lens esculenta	Jordan	74
Phaseolus vulgaris	Jordan	155
Vicia faba	Jordan	17, 74, 109
	Syria	19
H. schachtii		
Brassica oleracea var. capitata	Jordan	131
H. trifolii		
Pisum sativum, Vicia faba	Egypt	127
Trifolium alexandrinum	Egypt	80
H. zeae		
Hordeum vulgare, Triticum aestivum	Egypt	80, 127
Saccharum officinarum	Egypt	80
Zea mays	Egypt	1, 3, 7, 66, 80, 95, 98
***Hirschmaniella* spp.**		
Gossypium herbaceum, Oryza sativa	Egypt	80
H. gracillis		
Oryza sativa	Egypt	80
H. oryzae		
Gossypium herbaceum	Egypt	80
Oryzae sativa	Egypt	63
***Hoplolaimus* spp.**		
Allium cepa, Capsicum annum, Ficus carica, Medicago sativa, Olea europaea, Phoenix dactylifera, Triticum aestivum	Saudia Arabia	25
Arachis hypogaea, Beta vulgaris, Brassica rapa, Citrullus vulgaris, Glycine max, Gossypium herbaceum, Helianthus annus, Malus sylvestris, Mangifera indica, Musa spp., *Oryza sativa, Prunus amygdalus, Psidium guajava, Pyrus communis, Saccharum officinarum*	Egypt	80
Citrus spp., *Vitis vinifera*	Egypt	80
	Saudia Arabia	25
Morus rubra	Egypt	153
H. aegypti		
Gossypium spp.	Egypt	104
Hibiscus cannabinus	Egypt	124
Ipomoea batata, Solanum tuberosum	Egypt	80
Phoenix dactylifera	Egypt	80, 81

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
Zea mays	Egypt	80, 105, 123
H. aegyptiensis		
Saccharum officinarum	Sudan	130
H. Columbus		
Citrus spp., *Musa* spp., *M. cavindishii*	Egypt	80
	Jordan	155
Gossypium spp., *Saccharum officinarum, Zea mays*	Egypt	80
H. galeatus		
Citrus spp., *Gossypium* spp., *Vitis vinifera*	Egypt	80
H. indicus		
Citrus spp.	Libya	60
H. pararobustus		
Musa spp., *Psidium guajava*	Egypt	80
H. seinhorsti		
Lycopersicon esculentum	Jordan	155
H. seshadrii		
Citrus spp., *Musa* spp.	Egypt	80
H. tylenchiformis		
Arachis hypogaea, Glycine max	Egypt	80
***Longidorus* spp.**		
Allium cepa	Jordan	109
Annona squamosa	Egypt	93
Citrus spp.	Egypt	80
	Saudia Arabia	25
	Yemen	16
Ficus carica	Saudia Arabia	25
	Yemen	16
Fragaria chiloensis	Egypt	80
	Jordan	109
Gossypium spp., *Musa* spp., *Olea europaea, Oryza sativa Prunus Persica*	Egypt	80
Medicago sativa	Jordan	17, 109
Morus rubra	Egypt	153
Phoenix dactylifera	Saudia Arabia	25
Punica granatum	Jordan	75
	Saudia Arabia	25
Pyrus communis	Egypt	80
	Saudia Arabia	25
Vitis vinifera	Egypt	80
	Libya	75
L. africanus		
Allium cepa, Triticum aestivum, Zea mays	Saudia Arabia	24, 25
Beta vulgaris, Ficus carica, Phoenix dactylifera	Saudia Arabia	25
Brassica oleraceae var. capitata, Capsicum spp., *Cucumis sativus, Cucurbita* spp., *Hibiscus esculentus, Medicago sativa, Phaseolus vulgaris, Punica granatum, Solanum tuberosum*	Saudia Arabia	24
Citrus spp.	Egypt	80
	Jordan	174
Citrus limon	Jordan	109
	Saudia Arabia	25
Lycopersicon esculentum	Jordan	109
	Saudia Arabia	24
Musa spp., *M. cavindishii*	Egypt	80
	Jordan	155
Saccharum officinarum	Egypt	80
	Sudan	130
Solanum melongena	Jordan	155
	Saudia Arabia	24
Vitis vinifera	Egypt	80
	Saudia Arabia	25
L. brevicaudatus		
Gossypium spp.	Egypt	80
L. elongates		
Citrus spp., *Fragaria chiloensis, Gossypium* spp., *Mangifera indica, Olea europaea, Saccharum officinarum, Solanum melongena, Vitis vinifera, Zea mays*	Egypt	80

Nematode/Host	Country	References
L. georgiensis		
Citrus spp.	Egypt	80
L. laevicapitatus		
Citrus spp., *Glycine max, Vitis vinifera*	Egypt	80
Musa spp., *M. cavindishii*	Egypt	80
	Jordan	155
L. leptocephalus		
Glycine max. Vitis vinifera	Egypt	80
L. siddiqi		
Allium cepa, Olea europaea	Jordan	74, 109
Citrus limon	Jordan	109
	Saudia Arabia	25
Ficus carica, Vitis vinifera, Phoenix dactylifera, Punica granatum	Saudia Arabia	25
Gossypium spp.	Egypt	80
Lycopersicon esculentum	Jordan	109
Musa spp.	Jordan	74
Solanum melongena	Jordan	155
L. sylphus		
Saccharum officinarum	Iraq	30
L. taniwha		
Citrus spp., *Ficus carica, Musa* spp.	Egypt	80
L. vineacola		
Citrus spp., *Lycopersicon esculentum, Solanum melongena*	Jordan	155
Macroposthonia spp.		
Citrus spp., *Phoenix dactylifera, Punica granatum, Solanum tuberosum, Vitis vinifera*	Saudia Arabia	25
Hordeum vulgare	Morocco	44
Triticum aestivum	Morocco	44
	Saudia Arabia	25
M. rustica		
Triticum aestivum,T. durum	Jordan	17, 74, 109
Vitis vinifera	Jordan	74, 109
M. xenoplax		
Citrus spp.	Jordan	74
Citrus limon	Jordan	109
	Saudia Arabia	25
Lycopersicon esculentum	Jordan	74, 109
Phoenix dactylifera, Punica granatum, Vitis vinifera	Saudia Arabia	25
***Meloidogyne* spp.**		
Allium cepa, A. sativum	Iraq	141
	Jordan	109
Arachis hypogaea, Oryza sativa, Pyrus communis, Saccharum officinarum	Egypt	80
Beta vulgaris, Brassica rapa, Capsicum frutescens, Citrullus vulgaris, Cucumis melo, Cucumis sativus, Cucurbita pep, Daucas carota, Lactuca sativa, Lycopersicon esculentum, Nicotiana tabacum, Solanum tuberosum	Jordan	109
Brassica oleracea var. capitata, Capsicum annum, Phaseolus vulgaris	Saudia Arabia	25
Brassica oleracea var. botrytis	Jordan	109
	Saudia Arabia	25
Citrus spp., *Punica granatum*	Saudia Arabia	39, 40
Ficus carica	Yemen	16
Helianthus annus, Malva parviflora, Spinacia oleracea	Libya	54
Hibiscus esculentus	Jordan	109
	Saudia Arabia	25, 39
Medicago sativa	Jordan	17, 109
Musa spp.	Egypt	80
	Libya	54
	Jordan	74
Olea europaea	Jordan	76, 109
Phoenix dactylifera, Psidium guajava	Saudia Arabia	40

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
Pisum sativum	Libya	54
	Saudia Arabia	25
Solanum melongena	Jordan	109
	Saudia Arabia	25, 40
	Yemen	16
Vicia faba	Jordan	17
Vitis vinifera	Jordan	109
	Libya	64
	Saudia Arabia	39, 40
	Yemen	16
Zea mays	Saudia Arabia	25, 39
M. arenaria		
Arachis hypogaea, Vitis vinifera	Egypt	80, 92
Capsicum frutescens,Triticum vulgare	Egypt	92
Citrullus vulgaris	Egypt	92
	Iraq	36, 100, 141
Corchorus olitorius	Saudia Arabia	25,39
Cucumis melo	Egypt	92, 108
Cucumis sativus	Egypt	108
	Iraq	143
	Saudia Arabia	25,39
Daucus carota	Egypt	92
	Saudia Arabia	25, 39
Ficus carica	Iraq	100, 142
	Yemen	16
Gossypium barbadense	Syria	19
Hibiscus esculentus	Egypt	89
	Iraq	36
Lupinus termis, Oryza sativa, Vigna sinensis	Egypt	91
Lycopersicon esculentum	Egypt	91, 92
	Iraq	141
	Saudia Arabia	25, 39
	Syria	106
Nicotiana tabacum	Egypt	79
	Iraq	141
Phaseolus vulgaris	Egypt	91
	Sudan	150
Phoenix dactylifera	Egypt	81, 97
Prunus amygdalus	Iraq	141
Malva parviflora, Hibiscus cannabinus	Egypt	89, 92
Musa spp.	Egypt	80
Pisum sativum	Egypt	91, 92
Solanum melongena	Egypt	92
	Jordan	74
	Iraq	34, 141
	Yemen	16
Trifolium alexandrinum	Egypt	62, 91
Vicia faba	Egypt	91, 92
	Libya	56
Zea mays	Egypt	91, 92
	Libya	54
M. artiella		
Pisum sativum, Vicia sativa	Syria	19
Cicer arietinum	Syria	19, 68
M. hapla		
Arachis hypogaea	Libya	54
Capsicum frutescens	Iraq	141
Fragaria chiloensis, Lycopersicon esculentum, Saccharum officinarum	Egypt	80
Solanum melongena	Libya	98
M. incognita		
Allium cepa	Egypt	47, 48, 92
	Iraq	141
	Saudia Arabia	25
Allium sativum	Egypt	47, 48
	Iraq	141
Annona squamosa	Egypt	93
Arachis hypogaea	Egypt	80
Beta vulgaris	Libya	54
	Saudia Arabia	25
	Syria	19
Brassica oleracea var. capitata	Egypt	92
	Saudia Arabia	25
Brassica oleracea var. Botrytis. Linum usitatissimum, Musa cavindishii, M. sapientum, Spinacia oleracea, Vigna sesquipedalis	Egypt	92
Brassica rapa, Cucurbita moschata, Lactuca sativa	Egypt	92
	Libya	54
Capsicum spp.	Saudia Arabia	24, 39
	Yemen	16
Capsicum annum	Libya	54, 98
	Morocco	57
	Saudia Arabia	25
Capsicum frutescens	Egypt	92
	Iraq	141
	Jordan	14, 109
Citrullus vulgaris	Egypt	92, 136
	Iraq	100, 142
	Saudia Arabia	35
Cucumis melo	Egypt	92
	Iraq	141
	Jordan	14, 109
	Saudia Arabia	25
Cucumis sativus	Egypt	92
	Iraq	141
	Libya	54, 101
	Saudia Arabia	25, 39
	Syria	106
Cucurbita pepo	Egypt	92
	Jordan	155
	Libya	54
	Saudia Arabia	39
Daucus carota	Saudia Arabia	25, 39
Ficus carica	Egypt	92
	Iraq	141
	Libya	54
	Saudia Arabia	25
	Yemen	16
Glycine max	Egypt	83, 92
Gossypium barbadense	Egypt	80, 90, 92
	Syria	17
Helianthus annus	Egypt	2, 9, 45, 46 ,65, 92
Hibiscus cannabinus, Malva parviflora	Egypt	89, 92
Hibiscus esculentus	Egypt	86, 89, 92
	Jordan	14
Hordeum vulgare	Egypt	92, 129
Lupinus termis	Egypt	62, 91, 152
Lycopersicon esculentum	Egypt	5,47,48, 65, 77, 83, 92, 86, 103, 115, 151
	raq	36, 141
	Jordan	12, 13, 14, 109
	Libya	54, 101
	Morocco	57
	Saudia Arabia	25, 3 9
	Syria	106
Malus sylvestris	Libya	137
Medicago sativa	Libya	54
	Oman	102
Morus rubra	Syria	106
Musa spp.	Egypt	80
	Oman	102
Nicotiana tabacum	Egypt	79, 92
	Iraq	141
Olea europaea	Egypt	81
	Jordan	74, 109
	Libya	58
Oryza sativa	Egypt	80, 92
Phaseolus vulgaris	Egypt	91, 92
	Iraq	140
	Jordan	14
	Saudia Arabia	25, 39
	Sudan	150
Phoenix dactylifera	Egypt	81, 92, 97
	Saudia Arabia	25, 39
Pisum sativum	Egypt	62, 91, 92, 152

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
Punica granatum	Egypt	92
	Jordan	75
	Libya	54, 137
	Saudia Arabia	24
Prunus amygdalus	Egypt	92, 121
	Iraq	141
Prunus domestica	Libya	54
Prunus persica	Egypt	92
	Iraq	100, 142
	Libya	137
Psidium guajava	Egypt	50
Pyrus communis	Saudia Arabia	24
Saccharum officinarum	Egypt	89
Solanum melongena	Egypt	92
	Iraq	34, 36, 141
	Jordan	12, 14, 76, 109
	Libya	54
	Saudia Arabia	25, 39
Solanum tuberosum	Egypt	80, 92
	Libya	54
Trifolium alexandrinum	Egypt	62, 92, 152
Vicia faba	Egypt	62, 91, 92, 152
	Iraq	100, 140, 141
Vigna sinensis	Egypt	91, 92
	Iraq	140
Vitis vinifera	Egypt	80, 92, 147
	Iraq	141
	Libya	54
	Saudia Arabia	24
Zea mays	Egypt	86, 91, 92
M. javanica		
Allium cepa	Iraq	141
	Libya	54
	Saudia Arabia	24, 25
Allium sativum	Iraq	141
	Libya	54
Arachis hypogaea	Egypt	80, 92, 148
Beta vulgaris	Egypt	92
	Iraq	141
	Libya	54
	Syria	19
Brassica oleracea var. botrytis	Egypt	92
	Libya	54
	Saudia Arabia	25, 39
Brassica oleracea var. capitata	Egypt	85, 92
	Jordan	14, 74, 109
	Libya	54
	Saudia Arabia	24, 25
Capsicum annum	Iraq	36
	Libya	54, 101
	Saudia Arabia	24, 39
Capsicum frutescens, Cucurbita maxima, Ficus carica	Iraq	141
Citrullus colocynthis	Egypt	107
Citrullus lanatus	Jordan	14
	Libya	54
	Saudia Arabia	25, 39
Citrullus vulgaris	Egypt	85, 92, 107
	Iraq	141
	Saudia Arabia	24
Citrus spp.	Saudia Arabia	25, 39
Corchorus olitorius	Iraq	141
	Jordan	14
Cucumis melo	Egypt	92, 107, 108,
	Iraq	128
	Jordan	141
	Morocco	14, 109
	Saudia Arabia	57
		39, 40
Cucumis melo var. flexus	Jordan	14
	Saudia Arabia	24
Cucumis sativus	Egypt	85, 107, 108
	Iraq	37, 141, 144
	Jordan	14, 74, 109, 155
	Libya	101
	Saudia Arabia	24, 39
	Syria	107

Nematode/Host	Country	References
Cucurbita spp.	Iraq	36
	Saudia Arabia	24
Cucurbita moschata, Fragaria chiloensis, Linum usitatissimum, Triticum vulgare	Egypt	92
Cucurbita pepo	Egypt	92
	Jordan	74, 109
	Libya	54
Daucus carota	Iraq	141
	Libya	54
	Saudia Arabia	24, 25, 39, 40
Glycine max	Egypt	83, 92
	Iraq	141
Gossypium barbadense	Syria	19
Helianthus annus	Egypt	43, 92
	Iraq	141
	Saudia Arabia	25
Hibiscus esculentus	Egypt	89, 117
	Iraq	36, 141
	Jordan	14, 109
	Saudia Arabia	24
Hordeum vulgare	Egypt	88, 92
Lactuca sativa	Egypt	92
	Iraq	141
Lens esculenta	Jordan	74
Lycopersicon esculentum	Egypt	83, 85, 92, 118
	Iraq	6, 32, 36, 99, 141
	Jordan	12, 13, 14, 109, 155
	Libya	54, 55, 56, 101
	Morocco	57
	Saudia Arabia	24,39
	Syria	106
	U.A.E	31
Malus sylvestris	Egypt	89
	Iraq	141
	Libya	137
Malva parviflora	Egypt	89, 92
Medicago sativa	Egypt	92
	Libya	54
	Oman	111
	Saudia Arabia	22, 24, 25
Musa cavindishii	Egypt	80, 92
	Iraq	141
	Jordan	109, 155
	Morocco	57
	Saudia Arabia	25, 39
Nicotiana tabacum	Iraq	141
	Syria	16
Olea europaea	Egypt	81, 92
	Iraq	141
	Jordan	74, 76, 109
	Libya	58
Oryza sativa	Egypt	80, 92
Phaseolus vulgaris	Egypt	91, 92
	Iraq	36,140
	Jordan	74, 155
	Libya	54
	Saudia Arabia	24
	Sudan	150
Phoenix dactylifera	Egypt	81, 92, 97
	Iraq	141
	Libya	54
Pisum sativum	Egypt	45, 91, 92
	Iraq	141
Prunus amygdalus	Egypt	92, 121
	Iraq	141
Prunus persica	Egypt	92, 148
	Iraq	36, 141
	Libya	137
Psidium guajava	Jordan	155
Punica granatum	Egypt	92
	Iraq	141
	Jordan	75
	Libya	137
	Saudia Arabia	25, 39

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
Solanum melongena	Egypt	92
	Iraq	34, 35, 36, 142, 144
	Jordan	12, 14, 15, 109, 155
	Libya	54, 56
	Morocco	57
	Saudia Arabia	22, 24, 39
Solanum tuberosum	Egypt	46, 80, 92
	Iraq	141
	Saudia Arabia	25
Spinacia oleracea	Egypt	92
	Iraq	141
Trifolium alexandrinum	Egypt	62, 91
Triticum aestivum	Egypt	88, 129
Vicia faba	Egypt	62, 91, 92
	Iraq	140
	Jordan	14, 17, 109
	Libya	54
	Saudia Arabia	25, 39
Vigna sesquipedalis	Egypt	91
Vigna sinensis	Egypt	91, 146, 154
	Iraq	140, 141
	Jordan	14
Vitis vinifera	Egypt	80, 92
	Iraq	141, 145
	Saudia Arabia	25
Zea mays	Egypt	91, 92
	Iraq	141
	Libya	54
	Saudia Arabia	22, 24, 39
M. naasi		
Hordeum vulgare	Libya	54
***Merlinius* spp.**		
Vicia faba	Jordan	17
M. brevidens		
Citrus spp., *Cucurbita pepo*, *Phaseolus vulgaris*, *Punica granatum*, *Vicia faba*	Jordan	155
Olea europaea	Jordan	76, 155
Hordeum vulgare	Morocco	44
Triticum aestivum, *T. durum*	Jordan	17, 109
	Morocco	44
M. microdorus		
Olea europaea	Jordan	76, 109
Punica granatum	Jordan	75
Solanum melongena, *Triticum aestivum*	Jordan	155
M. nanus		
Brassica oleracea var. capitata, *Lactuca sativa*, *Vitis vinifera*	Jordan	74
Olea europaea	Jordan	74, 109
Triticum aestivum, *T. durum*	Jordan	17, 109
Vicia faba	Jordan	17, 74
M. nothus		
Citrus spp.	Egypt	80
M. perevidens		
Solanum tuberosum	Egypt	80
M. rugosus		
Musa spp., *Vitis vinifera*	Jordan	74
Triticum aestivum, *T. durum*	Jordan	74, 17, 109
Mesodorylaimus pseudosubtilis		
Vitis vinifera	Egypt	80
Nacobbus aberrans		
Ipomoea batata	Egypt	80
Nothocriconema duplicivestitum		
Punica granatum	Jordan	74, 109
N. loofi		
Olea europaea	Jordan	76
Punica granatum	Jordan	75
N. mutabile		
Solanum tuberosum	Egypt	80
***Nygolaimus* spp.**		
Citrus spp., *Vitis vinifera*	Egypt	80
Paralongidorus erriae		
Vitis vinifera	Egypt	80
P. georgiensis		
Citrus spp.	Egypt	80
***Paratrichodorus* spp.**		
Olea europaea	Jordan	76
Lycopersicon esculentum	Jordan	109
P. minor		
Citrus limon	Jordan	109
Lycopersicon esculentum	Egypt	80
Phoenix dactylifera	Egypt	80, 81
Vitis vinifera	Jordan	155
P. tunisiensis		
Punica granatum	Jordan	76
Paratrophurus lobatus		
Phaseolus vulgaris, *Triticum aestivum*	Sudan	150
Saccharum officinarum	Sudan	130
***Paratylenchus* spp.**		
Allium cepa, *Citrullus vulgaris*	Saudia Arabia	40
Citrus spp., *Solanum tuberosum*, *Medicago sativa*	Saudia Arabia	25
Brassica oleraceae var. botrytis, *Capsicum frutescens*, *Ficus carica*, *Olea europaea*	Jordan	109
Morus rubra	Egypt	153
Prunus Persica, *Pyrus communis*, *Zea mays*	Egypt	80
Triticum aestivum, *T. durum*	Jordan	17
Vitis vinifera	Libya	64
	Saudia Arabia	25
	Yemen	16
***Pratylenchoides* spp.**		
Citrus spp., *Gossypium* spp., *Oryza sativa*, *Vitis vinifera*	Egypt	80
P. crenicauda		
Vitis vinifera	Egypt	80
***Pratylenchus* spp.**		
Allium cepa	Jordan	76
Arachis hypogea	Egypt	80
	Sudan	150
Citrus spp.	Egypt	80
	Libya	60
	Saudia Arabia	25, 40
Cucumis melo	Yemen	16
Daucus carota, *Lactuca sativa*, *Nicotiana tabacum*, *Olea europaea*, *Prunus armeniaca*, *Spinacia oleracea*	Jordan	109
Gossypium spp., *Prunus Persica*, *Pyrus communis*	Egypt	80
Hordeum vulgare, *Solanum melongena*	Saudia Arabia	25
Ficus carica	Jordan	109
	Saudia Arabia	25
Lycopersicon esculentum	Saudia Arabia	40
	Yemen	16
Malus sylvestris	Egypt	80
	Saudia Arabia	40
Medicago sativa	Jordan	17, 109
	Saudia Arabia	25
Musa spp.	Egypt	80
	Saudia Arabia	25
Phoenix dactylifera	Egypt	81, 97
	Saudia Arabia	40
Punica granatum	Saudia Arabia	25, 97
Saccharum officinarum	Sudan	130
Triticum aestivum	Saudia Arabia	25
	Sudan	150
Vicia faba	Jordan	17
	Sudan	150
Vitis vinifera	Egypt	80
	Libya	64
	Saudia Arabia	25
	Yemen	16

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
P. brachyurus		
Citrullus vulgaris, Citrus spp., *Fragaria chiloensis, Gossypium* spp. *Hibiscus esculentus, Ipomoea batata , Lycopersicon esculentum, Musa* spp., *Oryza sativa, Phaseolus vulgaris, Pisum sativum, Solanum tuberosum, Trifolium alexandrinum, Vicia faba, Vitis vinifera*	Egypt	80
Medicago sativa	Oman	111
Zea mays	Egypt	3, 80
P. coffeae		
Arachis hypogea, Citrullus vulgaris, Citrus spp., *Lycopersicon esculentum, Musa* spp., *Phaseolus vulgaris, Pisum sativum, Solanum tuberosum, Vicia faba*	Egypt	80
Olea europaea	Jordan	76
P. crenatus		
Cucurbita pepo	Jordan	155
Hordeum vulgare	Egypt	127
Saccharum officinarum	Egypt	80
P. delattrei		
Citrus spp. *Lycopersicon esculentum, Olea europaea, Phaseolus vulgaris*	Jordan	155
Medicago sativa	Oman	111
Saccharum officinarum	Sudan	130
P. goodeyi		
Citrullus vulgaris, Fragaria chiloensis, Oryza sativa, Phaseolus vulgaris, Vicia faba	Egypt	80
P. jordanensis		
Medicago sativa	Oman	101, 109, 111
P. mediterraneus		
Citrus spp., *Vicia faba, Lycopersicon esculentum*	Jordan	155
P. minyus		
Arachis hypogea, Citrullus vulgaris, Gossypium spp., *Musa* spp., *Phaseolus vulgaris, Solanum tuberosum,Trifolium alexandrinum, Triticum aestivum, Vitis vinifera, Zea mays*	Egypt	80
P. musicola		
Musa spp	Egypt	80
P. neglectus		
Citrus spp	Egypt	80
	Jordan	74
	Syria	106
Citrus limon	Jordan	109
Hordeum vulgare,Triticum aestivum, T. durum	Egypt	127
	Morocco	44
Mangifera indica, Vitis vinifera, Zea mays	Egypt	80
Medicago sativa	Oman	111
Olea europaea	Jordan	76
P. penetrans		
Arachis hypogea, Citrullus vulgaris, Cucumis sativus, Gossypium spp., *Hibiscus esculentus, Ipomoea batata, Mangifera indica, Musa* spp., *Oryza sativa, Pisum sativum, Prunus Persica, Trifolium alexandrinum, Vitis vinifera*	Egypt	80
Cucurbita pepo, Solanum melongena	Jordan	155
Citrus spp., *Solanum tuberosum*	Egypt	80
	Jordan	155
Hordeum vulgare, Triticum aestivum, T. durum	Morocco	44
Lens esculenta	Jordan	74
Lycopersicon esculentum	Egypt	80
	Jordan	109
Medicago sativa	Saudia Arabia	23
Olea europaea	Jordan	76
Phaseolus vulgaris	Jordan	74, 109
Punica granatum	Jordan	75, 109
Zea mays	Egypt	80
	Saudia Arabia	23
P. pratensis		
Citrullus vulgaris, Cucumis sativus, Fragaria chiloensis, Ipomoea batata, Lycopersicon esculentum, Musa spp., *Phaseolus vulgaris, Oryza sativa, Solanum tuberosum, Trifolium alexandrinum, Vitis vinifera, Zea mays*	Egypt	80
Citrus spp.	Egypt	80
	Syria	106
P. scribneri		
Citrullus vulgaris, Ipomoea batata, Solanum tuberosum	Egypt	80
Phaseolus vulgaris	Egypt	80
	Jordan	155
Solanum melongena	Jordan	155
P. sefaensis		
Lycopersicon esculentum, Olea europaea	Jordan	155
P. sudanensis		
Citrus spp.	Jordan	155
Saccharum officinarum	Sudan	130
Triticum aestivum	Sudan	150
P. thornei		
Beta vulgaris, Brassica oleracea var. botrytis, B. o. var. capitata, Brassica rapa, Daucus carota, Lactuca sativa, Spinacia oleracea, Vicia sativa	Syria	72
Cicer arietinum, Lens culinaris	Jordan	17, 109
	Syria	19, 70, 72
Ficus carica, Gossypium spp., *Hibiscus esculentus, Ipomoea batata, Oryza sativa, Prunus Persica, Psidium guajava, Saccharum officinarum, Trifolium alexandrinum*	Egypt	80
Cydonia oblonga, Zea mays	Jordan	74, 109
Hordeum vulgare	Morocco	44
	Syria	72
Lycopersicon esculentum	Egypt	80
	Jordan	109
Malus sylvestris	Jordan	74, 155
Medicago sativa	Syria	70, 72
Musa cavindishii	Jordan	74, 109, 155
Olea europaea	Jordan	74, 76
	Libya	58
Phaseolus vulgaris	Egypt	80
	Jordan	74, 109
Phoenix dactylifera	Egypt	80, 81
Pisum sativum, Solanum tuberosum	Egypt	80
	Syria	72
Prunus amygdalus	Libya	61
Solanum melongena	Egypt	80
	Jordan	155
Triticum aestivum, T. durum	Egypt	80, 127
	Jordan	6, 17
	Morocco	44
	Syria	72
Vicia faba	Jordan	17
	Syria	70, 71, 135

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
P. vulnus		
Citrullus vulgaris,Citrus spp. *Cucumis sativus, Musa* spp., *Mangifera indica, Phaseolus vulgaris, Prunus Persica, Trifolium alexandrinum, Vitis vinifera*	Egypt	80
Olea europaea	Libya	58
P. zeae		
Capsicum frutescens	Jordan	155
Citrus spp.	Egypt	80
	Jordan	74
Gossypium spp., *Hibiscus esculentus, Mangifera indica, Oryza sativa, Phaseolus vulgaris*	Egypt	80
Hordeum vulgare	Egypt	127
Prunus persica	Egypt	80
	Jordan	155
Triticum aestivum	Egypt	80, 127
Vicia faba	Egypt	80
	Saudia Arabia	24
Zea mays	Egypt	80, 87
	Saudia Arabia	24
Pseudhalenchus anchilisposomus		
Pyrus communis	Egypt	80
***Psilenchus* spp.**		
Arachis hypogaea	Sudan	150
Solanum tuberosum	Egypt	80
Vicia faba	Jordan	17, 74
P. aestuarius		
Gossypium spp.	Egypt	80
P. hilarulus		
Musa spp., *Vicia faba*	Jordan	74
Gossypium spp., *Oryza sativa*	Egypt	80
P. iranicus		
Olea europaea	Jordan	76
Solanum tuberosum	Egypt	80
P. magnidens		
Gossypium spp.	Egypt	80
P. striatus		
Solanum tuberosum	Egypt	80
Radopholus similis		
Musa spp., *Pyrus communis*	Egypt	80
Rotylenchoides variocaudatus		
Gossypium spp.	Egypt	80
***Rotylenchulus* spp.**		
Annona squamosa	Egypt	93
Citrus spp.	Egypt	80
	Libya	60
Ficus carica, Medicago sativa	Saudia Arabia	25
Gossypium spp., *Musa* spp., *Pyrus communis*	Egypt	80
Saccharum officinarum	Sudan	130
Vitis vinifera	Egypt	80
	Libya	64
R. macrosomus		
Olea europaea	Jordan	76, 155
Phoenix dactylifera	Saudia Arabia	25
Punica granatum	Jordan	75
R. reniformis		
Ananas sativus, Cucumis sativus, Glycine max, Gossypium spp., *Hibiscus esculentus, Musa* spp., *Oryza sativa, Solanum melongena, S. tuberosum*	Egypt	80
Cicer arietinum, *Lens* spp., *Pisum sativum*	Egypt	127
Ficus carica	Saudia Arabia	25
Helianthus annus	Egypt	43, 92, 94
Lycopersicon esculentum	Egypt	80, 114, 151
Mangifera indica	Egypt	49
Morus rubra	Egypt	153
Vicia faba	Egypt	5, 127
Vigna sinensis	Egypt	146, 154
Vitis vinifera	Egypt	80
	Libya	64
R. variabilis		
Citrus spp.	Jordan	155
***Rotylenchus* spp.**		
Citrullus vulgaris, Citrus spp., *Gossypium* spp., *Mangifera indica, Musa* spp., *Trifolium alexandrinum, Vitis vinifera*	Egypt	80
Prunus persica	Egypt	80
	Jordan	155
R. cypriensis		
Olea europaea	Jordan	76
R. robustus		
Citrus spp., *Mangifera indica*	Egypt	80
R. uniformis		
Citrus spp.	Egypt	80
***Subanguina* spp.**		
Cicer arietinum, Hordeum vulgare, Lens esculenta, Pisum sativum, Solanum tuberosum, Triticum aestivum, Vicia faba, Vitis vinifera	Saudia Arabia	25
Citrullus vulgaris, Cucumis melo, Lactuca sativa	Saudia Arabia	40
Thornenema mauritianum		
Citrus spp. *Musa* spp., *Vitis vinifera*	Egypt	80
***Trichodorus* spp.**		
Allium cepa	Jordan	109
	Saudia Arabia	40
Allium sativum, Psidium guajava	Saudia Arabia	40
Annona squamosa	Egypt	93
Arachis hypogaea, Citrullus vulgaris, Gossypium spp. *Ipomoea batata, Lycopersicon esculentum, Mangifera indica, Musa* spp., *Oryza sativa, Prunus amygdalus, P. persica, Pyrus communis, Trifolium alexandrinum*	Egypt	80
Citrus spp.	Egypt	80
	Libya	60
Hibiscus esculentus, Lens esculenta, Medicago sativa, Solanum tuberosum	Saudia Arabia	25
Phoenix dactylifera	Saudia Arabia	25, 40
Pisum sativum, Zea mays	Egypt	80
	Saudia Arabia	25
Vitis vinifera	Egypt	80
	Libya	64
	Saudia Arabia	25, 40
T. minor		
Vitis vinifera	Egypt	80
T. sparsus		
Citrus spp.	Jordan	74
Citrus limon	Jordan	109
Phaseolus vulgaris	Jordan	74, 109
T. teres		
Citrus spp., *Vitis vinifera, Zea mays*	Egypt	80
***Trichotylenchus* spp.**		
Lens culinaris	Jordan	17
Tylencholaimus teres		
Citrus spp.	Egypt	80
***Tylenchorhynchus* spp.**		
Allium cepa	Saudia Arabia	25, 40
Annona squamosa	Egypt	93
Beta vulgaris,Brassica oleracea var. botrytis, B. rapa, Daucus carota, Fragaria chiloensis, Lactuca sativa, Spinacia oleracea	Jordan	109

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
Brassica oleracea var. capitata	Jordan	109
	Saudia Arabia	25
Capsicum spp., *Nicotiana tabacum*	Yemen	16
Cicer arietinum, Cucumis melo var flexus, Ficus carica, Pisum sativum	Saudia Arabia	25
Citrus spp.	Egypt	80
	Saudia Arabia	25
	Yemen	16
Hibiscus esculentus, Malus sylvestris, Psidium guajava	Saudia Arabia	40
Hordeum vulgare	Morocco	44
	Saudia Arabia	25
Lens culinaris, L. esculenta	Jordan	17
	Saudia Arabia	25
Lycopersicon esculentum	Saudia Arabia	25, 40
	Yemen	16
Medicago sativa	Jordan	17
	Saudia Arabia	25
	Syria	68
Musa spp., *Pyrus communis*	Egypt	80
	Saudia Arabia	25
Phaseolus vulgaris	Sudan	150
	Saudia Arabia	25
Phoenix dactylifera	Egypt	81, 97
Punica granatum	Jordan	75
	Saudia Arabia	25, 40
Saccharum officinarum	Sudan	130
	Iraq	33
Solanum tuberosum	Egypt	80
	Jordan	109
	Saudia Arabia	25
Triticum aestivum, T. durum	Jordan	17
	Morocco	44
	Saudia Arabia	25
	Sudan	150
Vicia faba	Jordan	17, 74
	Saudia Arabia	25
	Sudan	150
	Syria	135
Vitis vinifera	Egypt	80
	Libya	64
	Saudia Arabia	25
T. annulatus		
Medicago sativa	Oman	111
T. besselatus		
Citrus spp., *Musa* spp., *Vitis vinifera*	Egypt	80
T. brassicae		
Citrus spp., *Pyrus communis*	Egypt	80
T. capitatus		
Allium cepa, Saccharum officinarum	Egypt	80
T. clarus		
Brassica oleraceae var. Capitata, Vitis vinifera	Jordan	74, 109
Brassica rapa, Cucurbita spp., *Oryza sativa, Psidium guajava, Trifolium alexandrinum*	Egypt	80
Citrus spp	Jordan	74
Citrus limon, Hibiscus esculentus	Jordan	109
Glycine max	Egypt	7
Olea europaea	Jordan	74, 76
	Libya	58
Prunus persica	Jordan	155
Punica granatum	Jordan	75
Zea mays	Egypt	80
	Jordan	74, 109
T. clavicaudatus		
Citrus spp.	Egypt	80
T. cylindricus		
Vitis vinifera	Egypt	80

Nematode/Host	Country	References
T. delbiensis		
Lycopersicon esculentum	Jordan	155
T. dubius		
Allium cepa, Lycopersicon esculentum	Jordan	109, 155
Citrus spp., *Cucumis sativus*	Jordan	74, 155
Citurs limon, Olea europaea	Jordan	109
Cucurbita pepo	Jordan	155
Cydonia oblonga, Brassica oleraceae var. capitata, Hibiscus esculentus, Musa cavindishii, Nicotiana tabacum Solanum melongena	Jordan	74, 109
Gossypium spp.	Egypt	80
Lens esculenta	Jordan	74
T. goffarti		
Capsicum spp., *Cucurbita* spp., *Solanum melongena, S. tuberosum, Zea mays*	Egypt	80
Medicago sativa	Oman	111
Musa cavindishii, Phaseolus vulgaris	Jordan	155
T. kegenicus		
Gossypium spp.	Egypt	80
T. latus		
Citrus spp., *Gossypium* spp., *Prunus amygdalus, Pyrus communis, Mangifera indica, Vitis vinifera*	Egypt	80
Prunus persica, Solanum melongena	Jordan	155
Zea mays	Egypt	3
T. martini		
Orysa sativa	Egypt	80
T. microdorus		
Gossypium barbadense	Egypt	125
T. nothus		
Citrus spp., *Morus rubra, Solanum melongena, Zea mays*	Egypt	80
T. parvus		
Olea europaea, Phaseolus vulgaris, Solanum melongena, Vicia faba	Jordan	155
T. phaseoli		
Citrus spp., *Musa* spp.	Egypt	80
T. ventrosignatus		
Citrus spp.	Jordan	155
Tylenchulus semipenetrans		
Citrus spp.	Egypt	80
	Iraq	67
	Jordan	74, 155
	Libya	60
	Saudia Arabia	24, 40
	Tunisia	51
Citrus aurantifolia	Egypt	133
	Saudia Arabia	25, 26, 27
Citrus aurantium	Egypt	10
	Iraq	78, 122
	Jordan	20
	Libya	53
Citrus jambhiri	Libya	53
Citrus limon	Jordan	33, 109
Citrus limonia	Libya	53
Citrus mitis cv. calamandin	Egypt	4
Citrus paradise	Egypt	81
Citrus sinensis	Egypt	120, 133
Olea europaea	Libya	58
	Saudia Arabia	2
	Syria	106
Pyrus communis	Saudia Arabia	24
Vitis vinifera	Egypt	80, 147
	Iraq	145
	Libya	64
	Saudia Arabia	25

Table 1. (Cont'd)

تابع للجدول 1.

Nematode/Host	Country	References
***Tylenchus* spp.**		
Allium cepa	Saudia Arabia	40
Annona squamosa	Egypt	93
Arachis hypogae, Phaseolus vulgaris	Sudan	150
Brassica oleracea var. capitata, Solanum tuberosum	Saudia Arabia	25
Hordeum vulgare	Morocco	4
Malus sylvestris, Oryza sativa, Prunus persica, Pyrus communis, Saccharum officinarum	Egypt	80
Medicago sativa	Saudia Arabia	25
	Sudan	150
Musa spp.	Egypt	80
	Saudia Arabia	25
Olea europaea	Egypt	81
Triticum aestivum	Morocco	44
	Sudan	150
Vicia faba	Syria	135
Vitis vinifera	Egypt	80
	Libya	64
	Saudia Arabia	25, 40
***Xiphinema* spp.**		
Annona squamosa	Egypt	93
Citrus spp., *Cucumis sativus, Cucurbita* spp., *Gossypium* spp. *Musa* spp., *Oryza sativa, Solanum melongena*	Egypt	80
Daucus carota, Malus sylvestris	Saudia Arabia	40
Ficus carica, Hibiscus esculentus, Medicago sativa	Saudia Arabia	25
Fragaria chiloensis, Lycopersicon esculentum	Jordan	109
Lens esculenta	Jordan	74
Morus rubra	Egypt	153
Olea europaea	Jordan	74, 81
Phoenix dactylifera	Egypt	80
	Saudia Arabia	25
Saccharum officinarum	Egypt	80
	Sudan	130
Solanum tuberosum	Egypt	80
	Jordan	109
Vitis vinifera	Egypt	80
	Libya	64
	Yemen	16
X. americanum		
Citrus spp., *Gossypium* spp. *Mangifera indica, Prunus amygdalus, Vitis vinifera*	Egypt	80
Medicago sativa	Oman	111
	Saudia Arabia	25
Hibiscus esculentus, Musa spp. *Phaseolus vulgaris, Punica granatum*	Saudia Arabia	25
X. arenarium		
Citrus spp., *Ficus carica*	Egypt	80
X. diversicaudatum		
Fragaria chiloensis	Egypt	80
X. elongatum		
Allium cepa, Citrus spp., *Fragaria chiloensis, Olea europaea, Vitis vinifera*	Egypt	80
X. ensiculiferum		
Phoenix dactylifera	Egypt	80, 81
X. hygrophilum		
Mangifera indica	Egypt	80
X. imitator		
Citrus spp., *Ficus carica, Musa* spp., *Vitis vinifera*	Egypt	80
X. incognitum		
Ficus carica	Egypt	80
X. index		
Citrus limon	Jordan	74, 109
Ficus carica	Jordan	74, 109
	Saudia Arabia	25
	Syria	106
Olea europaea	Jordan	76
Phoenix dactylifera	Saudia Arabia	25
Punica granatum	Jordan	75
	Saudia Arabia	25
Vitis vinifera	Egypt	80
	Iraq	145
	Jordan	109
	Syria	106
X. ingens		
Olea europaea	Jordan	74, 76
Triticum aestivum	Jordan	155
X. insigne		
Citrus spp.	Egypt	80
	Jordan	74
Citrus limon	Jordan	109
Mangifera indica, Saccharum officinarum, Vitis vinifera	Egypt	80
Musa cavindishii	Egypt	80
	Jordan	74, 109
X. ismailiensis		
Vitis vinifera	Egypt	80
X. italiae		
Citrus spp.	Libya	60
	Syria	106
Olea europaea	Libya	58
	Syria	106
Prunus armeniaca, Pyrus communis	Libya	137
Punica granatum, Vicia faba	Syria	106
Vitis vinifera	Egypt	80
X. lamberti		
Citrus spp., *Musa* spp., *Vitis vinifera*	Egypt	80
X. pachtaicum		
Citrus spp., *Triticum* spp.	Jordan	74
Cydonia oblonga	Jordan	74, 109
Ficus carica, Vitis vinifera	Jordan	74, 109
	Syria	106
Malus sylvestris, Prunus amygdalus, P. domestica	Syria	106
Olea europaea	Jordan	76, 155
	Libya	58
	Syria	106
Punica granatum	Jordan	74, 75
X. santos		
Vitis vinifera	Egypt	80
X. simillimum		
Ficus carica	Egypt	80
Vitis vinifera	Jordan	151
X. vuittenezi		
Pinus halepensis, Vitis vinifera	Jordan	74, 109
Zeldia thorne		
Olea europaea	Tunisia	52

جدول 2. النيماتودا المرافقة للنباتات من غير المحاصيل الزراعية (أشجار النخيل، الصباريات والنباتات العصية، نباتات حرجية ونباتات الزينة).

Table 2. Nematodes associated with non-crop plants (palm trees, cactus and succulent plants, ornamental and forest plants)

Nematode/Host	Country	References
Palm Trees أشجار النخيل		
***Criconemella (Criconemoides)* spp.**		
Arenga saccharifera, Bactris spp., *Binanga gracillior, Brahea roezlii, Buttia capitata, Caryota mitis, Cycas revolute, Kentia belmoreana, Livistona* spp., *Ptecosperma elegans, Rhapis flabilliformis, Sabal palmetto, Thrinax parviflora, Trachycarpus fortunei*	Egypt	97
Phoenix spp	Egypt	80, 97
Washingtonia filifera	Egypt	81, 97
***Ditylenchus* spp.**		
Acrocomia sclerocarpa, Arenga saccharifera, Bactris spp., *Linospadix monostachya, Rhapis humilis, Sabal feregrina, Thrinax parviflora*	Egypt	97
***Helicotylenchus* spp.**		
Acrocomia sclerocarpa, Arenga saccharifera, Bactris spp., *Borassus flabelifer, Brahea roezlii, Buttia capitata, Calamus rotang, Caryota* spp., *Chamaerops humilis, Chrysalidocarpus lutescense, Kentia belmoreana, Mascarenchesis versa felli, Phoenix* spp., *Ptecosperma elegans, Rhapis* spp., *Roystonea regia, Sabal palmetto, Thrinax* spp., *Trachycarpus fortunei, Washingtonia filifera*	Egypt	97
Cycas revoluta	Egypt	80
Washingtonia robusta	Egypt	81
H. aegyptiensis		
Phoenix spp.	Egypt	80
Roystonea regia	Egypt	81
H. digonicus		
Phoenix spp.	Egypt	80
Roystonea regia	Egypt	81
Hemicriconemoides cocophilus		
Phoenix canariensis	Egypt	81
H. mangiferae		
Roystonea regia	Egypt	81
***Hoplolaimus* spp.**		
Sabal palmetto	Egypt	81
H. aegypti		
Roystonea regia	Egypt	81
H. columbus		
Washingtonia fillifera	Egypt	81
***Longidorus* spp.**		
Linospadix monostachya, Rhapis humilis, Trachycarpus fortunei, Wallchia spp.	Egypt	97
***Meloidogyne* spp.**		
Buttia capitata, Caryota spp., *Livistona australis, Rhapis humilis, Sabal palmetto, Walichia* spp.	Egypt	97
M. arenaria		
Cycas revoluta	Egypt	81
M. incognita		
Arecastrum romanzoffianum, Phoenix canariensis, Sabal palmetto, Washingtonia robusta, Washingtonia robusta	Egypt	81
Washingtonia filifera	Egypt	81, 92
M. javanica		
Washingtonia filifera	Saudia Arabia	25
Nothocriconemella mutabilis		
Phoenix canariensis, Roystonea regia	Egypt	81
Paratylenchus Projectus		
Phoenix spp.	Egypt	80
Phoenix canariensis	Egypt	81
***Pratylenchus* spp.**		
Arecastrum romanzoffianum, Brahea roezlii, Ptecosperma elegans, Wallchia spp.	Egypt	97
Cycas revolute, Phoenix canariensis	Egypt	81
Sabal palmetto	Egypt	81, 97
***Psilenchus* spp.**		
Arecastrum romanzoffianum	Egypt	81
***Rotylenchulus* spp.**		
Acrocomia sclerocarpa, Arecastrum romanzoffianum, Arenga saccharifera, Bactris spp., *Binanga gracillior, Borassus flabelifer, Brahea roezlii, Buttia capitata, Caryota mitis, Chaemeolaria elegans, Chrysalidocarpus lutescense, Kentia* spp., *Linospadix monostachya, Livistona australis, Mascarenhesis versafelli, Phoenix* spp., *Piecosperma elegans, Rhapis flabelliformis, Roystonea regia, Thrinax parviflora, Washingtonia filifera*	Egypt	97
Cycas revoluta, Phoenix canariensis, Washingtonia robusta	Egypt	81
Sabal palmetto	Egypt	81, 97
***Trichodorus* spp.**		
Arenga saccharifera, Walichia spp.	Egypt	97
Cycas revoluta	Egypt	81

Table 2. (Cont'd) تابع للجدول 2.

Nematode/Host	Country	References
***Tylenchorhynchus* spp.**		
Cycas revoluta	Egypt	81
Walichi spp.	Egypt	97
T. annulatus		
Sabal palmetto	Egypt	81
T. clarus		
Phoenix spp.	Egypt	80
Phoenix canariensis	Egypt	81
T. ebriensis		
Washingtonia filifera	Egypt	80, 81
***Tylenchus* spp.**		
Acrocomia sclerocarpa, Arenga saccharifera, Bactris spp., *Borassus flabelifer, Caryota* spp., *Chamaerops humilis, Chrysalidocarpus lutescens, Phoenix* spp., *Rhapis flabelliformis, Roystonea regia, Thrinax* spp	Egypt	97
Washingtonia filifera	Egypt	81
***Xiphinema* spp.**		
Acrocomia sclerocarpa, Bactris spp., *Brahea roezlii, Calamus rotang, Caryota mitis, Kentia* spp., *Linospadix monostachya, Livistona australis, Phoenix* spp., *Rhapis* spp., *Thrinax barbadensis, Trachycarpus fortunei, Wallichia* spp.	Egypt	97
Washingtonia filifera	Egypt	81
X. basilgoodeyi		
Arecastrum romanzoffianum, Sabal palmetto	Egypt	81
Phoenix spp.	Egypt	80
Cactus and succulent plants نباتات الصباريات والنباتات الغضة		
***Criconemoides* spp.**		
Agave spp., *Aptenia cordifolia, Cereus* spp., *Furcraea foetida, Lemaireocereus marginatus, Nopalea dejecta, Sansevieria cylindrical, Tradescantia purpurea, Yucca aloefolia*	Egypt	96
***Ditylenchus* spp.**		
Agave spp., *Aptenia cordifolia, Cereus repandus, Euphorbia mauritanica, Furcraea foetida, Gasteria transvaalensis, Sansevieria* spp., *Yucca* spp.	Egypt	96
***Helicotylenchus* spp.**		
Agave spp., *Cereus strictus, Echinocactus grusonii, Furcraea foetida, Kalanchoe marmorata, Lemaireocereus marginatus, Nopalea dejecta, Sansevieria trifasciata, Yucca filamentosa*	Egypt	96
***Heterodera* spp.**		
Agave hybride, Aloe striata, Cereus spp.	Egypt	96
***Hoplolaimus* spp.**		
Agave spp., *Aloe* spp., *Cereus* spp., *Furcraea foetida, Gasteria* spp., *Kalanchoe marmorata, Sansevieria trifasciata, Yucca filamentosa*	Egypt	96
***Meloidogyne* spp.**		
Agave spp., *Aptenia cordifolia, Cereus* spp., *Crassula argentea, Echinocactus grusonii, Euphorbia* spp., *Furcraea foetida, Gasteria* spp., *Kalanchoe marmorata, Opuntia subulate, Sansevieria* spp., *Yucca filamentosa*	Egypt	96
M. incognita		
Euphorbia spp.	Saudia Arabia	25
***Pratylenchus* spp.**		
Aloe striata, Cereus montrosus, Euphorbia lacteal, Syndenium grantii	Saudia Arabia	25
***Rotylenchulus* spp.**		
Agave spp., *Aloe spp., Aptenia cordifolia, Cereus* spp., *Echinocactus grusonii, Euphorbia* spp., *Furcraea* spp., *Gasteria* spp., *Harrisia bonplandii, Kalanchoe marmorata, Nopalea dejecta, Opuntia* spp., *Pereskia aculeate, Portulacaria afra, Sansevieria* spp., *Tradescantia purpurea, Yucca filamentosa*	Egypt	96
***Tylenchorhynchus* spp.**		
Agave spp., *Aloe* spp., *Aptenia cordifolia, Cereus* spp., *Echinocactus grusonii, Euphorbia* spp., *Furcraea* spp., *Gasteria transvaalensis, Harrisia bonplandii, Nopalea dejecta, Opuntia* spp., *Pereskia aculeate, Portulacaria afra, Sansevieria trifasciata, Syndenium grantii, Tradescantia purpurea, Yucca* spp.	Egypt	96
***Tylenchulus* spp.**		
Agave spp., *Aptenia cordifolia, Cereus montrosus, Euphorbia mauritanica, Opuntia subulate, Sansevieria* spp., *Syndenium grantii, Tradescantia purpurea, Yucca aloefolia*	Egypt	96
***Xiphinema* spp.**		
Agave spp., *Aloe ciliaris, Euphorbia* spp., *Furcraea foetida, Sansevieria trifasciata, Yucca aloefolia*	Egypt	96
Ornamental and Forest Plants نباتات حرجية ونباتات الزينة		
***Aphelenchoides* spp.**		
Dodonea viscose, Eucalyptus camaldulenis	Saudia Arabia	42
Rosa spp.	Saudia Arabia	25
***Aphelenchus* spp.**		
Eucalyptus camaldulenis	Saudia Arabia	25
Rosa spp.	Saudia Arabia	25, 42

Table 2. (Cont'd)

تابع للجدول 2.

Nematode/Host	Country	References
Criconemella mutabile		
Cynodon dactylon	Egypt	80
C. sphaerocephala		
Amaranthus caudatus, Cynodon dactylon, Cyperus rotundus	Egypt	81
C. sphaerocephalum		
Cynodon dactylon, Cyperus rotundus, Rosa spp.	Egypt	80
Discocriconemella sphaerocephaloides		
Cynodon dactylon	Egypt	81
Ditylenchus dipsaci		
Dianthus cariophillus, Gladiolus palustris	Iraq	143
Tamarix spp.	Saudia Arabia	25
***Helicotylenchus* spp.**		
Juniperus excelsa, Populus spp.	Saudia Arabia	25
H. abuharazi		
Quisqualis spp.	Sudan	156
H. digonicus		
Pinus halepensis	Jordan	109
H. dihystera		
Myoporum pictum	Egypt	81
H. microcephalus		
Cynodon dactylon	Egypt	80, 81
H. multicinctus		
Cynodon dactylon	Egypt	80
H. pseudorobustus		
Amaranthus caudatus, Cyperus rotundus	Egypt	81
Cynodon dactylon	Egypt	80
***Hemicycliophora* spp.**		
Cynodon dactylon, Rosa spp.	Egypt	80
H. oostenbrinki		
Cynodon dactylon	Egypt	80
***Heterodera* spp.**		
Cyperus rotundus	Egypt	80
H. ciceri		
Dianthus cariophillus	Syria	69
H. goldeni		
Panicum coloratum	Egypt	80
H. rosii		
Melilotus indica	Egypt	80
Hirschmaniella oryzae		
Amaranthus caudatus	Egypt	81
Hoplolaimus clarissimus		
Cynodon dactylon, Cyperus rotundus	Egypt	80, 81
Irantylenchus clavidorus		
Amaranthus caudatus, Cynodon dactylon	Egypt	81
***Longidorus* spp.**		
Cynodon dactylon	Egypt	80
L. elongatus		
Cynodon dactylon	Egypt	80
***Meloidogyne* spp.**		
Dianthus cariophillus, Rosa spp.	Saudia Arabia	25
Myoporum pictum	Egypt	81
M. incognita		
Acacia spp., *Anemone trifolia, Begonia semperflorens, Camellia Japonica, Casuarina cunninhamiana, Chrysanthemum* spp., *Dianthus barabatus, Ficus elastica, Jasminum* spp., *Lilium* spp., *Rosa* spp.	Egypt	92
Amaranthus caudatus	Egypt	81, 92
Anemone coronaria, Polianthes tuberose, Zantedeschia spp.	Egypt	117
Casuarina equisitifolia	Egypt	89
Casuarina glauca	Egypt	83, 92
Cynodon dactylon, Cyperus rotundus, Myoporum pictum	Egypt	81
Dianthus cariophillus	Morocco	57
M. javanica		
Acacia spp., *Amaranthus caudatus, Casuarina cunninghamiana, Casuarina equisitifolia, Chrysanthemum* spp., *Dahli* spp., *Dianthus barabatus, Ficus* spp., *Gerbera jamesonli, Iris* spp.	Egypt	92
Casuarina glauca	Egypt	84, 92
Lawsonia inermis	Saudia Arabia	42
Rosa spp.	Egypt	92
	Saudia Arabia	42

Abstract

Abu-Gharbieh, W. and T. Al-Azzeh. 2004. A Checklist on Nematode – Plant Associations in the Arab Countries. Arab J. Pl. Prot. 22: 1-22.

This compilation revealed occurrence of 216 species belonging to 65 genera of nematodes associated with plants in the Arab countries. Certain plant-parasitic nematode genera/species were reported from only one country such as: *Hirschmaniella oryzae*, *Nacobbus aberrans*, *Nothocriconemella mutabilis*, *Pratylenchoides* spp., *Pseudhalenchus anchilisposomus*, *Radopholus similis*, *Rotylenchoides variocaudatus*, *Tylencholaimus teres*, and *Irantylenchus clavidorus* (Egypt); *Amplimerlinius* spp., *Basiria* spp., *Bidera latipons*, *Coslenchus* spp., *Crossonema* spp., *Gracilacus micoletzky*, *Nothocriconema* spp., *Rotylenchus* spp., and *Trichotylenchus* spp. (Jordan); *Dolichodorus* spp. (Libya); *Boleodorus* spp. (Morocco); *Belonolaimus longicaudatus*, and *Subanguina* spp. (Saudia Arabia); *Paratrophurus lobatus* (Sudan); *Zeldia thorne* (Tunisia). Some other genera were reported from two countries like: *Criconemoides* spp., *Hemicycliophora* spp., *Nothocriconema* spp., *Paratrichodorus* spp., and *Rotylenchus* spp. (Egypt and Jordan); *Criconema* spp. (Jordan and Saudia Arabia). Meanwhile, some genera were found to occur in three countries like: *Hemicriconemoides* spp. (Egypt, Jordan, and Saudia Arabia); *Macroposthonia* spp. (Jordan, Morocco, and Saudia Arabia); *Merlinius* spp. (Egypt, Jordan, and Morocco); *Psilenchus* spp. (Egypt, Jordan, and Sudan). Certain other nematode genera were more common and distributed in several or most Arab countries, such as *Anguina* spp., *Aphelenchoides* spp., *Aphelenchus* spp., *Criconemella* spp., *Ditylenchus* spp., *Helicotylenchus* spp., *Heterodera* spp., *Hoplolaimus* spp., *Longidorus* spp., *Meloidogyne* spp., *Paratylenchus* spp., *Pratylenchus* spp., *Rotylenchulus* spp., *Trichodorus* spp. *Tylenchorhynchus* spp., *Tylenchulus* spp., *Tylenchus* spp. and *Xiphinema* spp.

Key words: Arab countries, Associations, Checklist, Distribution, Phytonematodes, Survey.

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References

المراجع

1. **Abadir, S.K., A.A. Al-Sayed and S.A. Haroon.** 1991. Post-infection development of *Heterodera zeae* in susceptible and resistant corn cultivars. Bulletin of Faculty of Agriculture, Cairo University (Egypt), 40: 733-740.
2. **Abadir, S.K., A.E. Ismail and A.M. Kheir.** 1996. Efficacy of soil amendment with plant wastes in the control of *Meloidogyne incognita* on sunflower. Pakistan Journal of Nematology, 14: 95-100.
3. **Abd-Elgawad, M.M.** 1990. Relationship of nematodes to yield of maize grown under different cultivation regimes. Pakistan Journal of Nematology, 8: 117-125.
4. **Abd-Elgawad, M.M., M.M. Youssef and M.M. Shamseldeen.** 1994. Observations on the population fluctuations of the citrus nematode on calamondin orange in Egypt. Pakistan Journal of Nematology, 12: 87-94.
5. **Abdel-Rahim, M.F., M.M. Satour, K.Y. Mickail, S.A. El-Eraki, A. Grinstein, Y. Chen and J. Katan.** 1988. Effectiveness of Soil Solarization in furrow-irrigated Egyptian soils. Plant Disease, 72: 143-146.
6. **Aboud, H.M., H.M. Saleh, F.A. Fattah and H.A. Hadwan.** 1992. *Trichoderma viride* as biocontrol agent of root-knot nematode. Iraqi Journal of Agriculture Science, 23: 7-12.
7. **Aboul-Eid, H.Z. and A. I. Ghorab.** 1981. The occurrence of *Heterodera zeae* in maize fields in Egypt. Egypt J. Phytopathol., 13: 51-61.
8. **Aboul-Eid, A.H. and H.A. Osman.** 1981. Control of *Tylenchorhynchus clarus* on soybean with systemic nematicides. Nematologia Mediterranea, 9: 105-107.
9. **Aboul-Eid, H.Z., A.E. Ismail and A.A. El-Sayed.** 1998. Effect of certain composted plant residues on sunflower *Helianthus annus* infected with *Meloidogyne incognita*. Egyptian Journal of Agronematology, 2: 79-95.
10. **Abu-Elamayem, M.M., M.Y. El-Shoura, R.S. Rabie, I.K.A. Ibrahim and K.S. Fawaz.** 1989. Effect of certain systemic nematicides on the interaction between *Tylechulus semipenetrans* and *Acaulospora trappei* on sour orange and Cleopatra mandarin. Nematologia Mediterranea, 17: 17-20.
11. **Abu-Gharbieh, W.A.** 1977. Population dynamics and effect of *Meloidogyne incognita* on different plantings of tomato in the Central Jordan Valley. Nematologia Mediterranea, 5: 227-232.
12. **Abu-Gharbieh, W.A.** 1979. The root knot nematode *Meloidogyne* spp. in Jordan. Progress Conference for International Meloidogyne Project. Region VII, Middle East Nov. 26-30. Athens, Greece.
13. **Abu-Gharbieh, W. A.** 1982a. Dates, rates and methods of DBCP application for control of *Meloidogyne javanica* on tomato. Dirasat, Research Journal, University of Jordan, Agricultural Studies, Vol. IX (1): 33-39.
14. **Abu-Gharbieh, W.A.** 1982b. Distribution of *Meloidogyne javanica* and *M. incognita* in Jordan. Nematologica, 28: 34-37.
15. **Abu-Gharbieh, W.A.** 1982c. Reaction of locally grown eggplant, hot and bell pepper cultivars to *Meloidogyne javanica*. Dirasat, Research Journal, University of Jordan, Agricultural Studies, Vol. IX (1): 205-206.
16. **Abu-Gharbieh, W. A.** 1983. A report on plant parasitic nematodes in the Democratic Republic of Yemen. 23-30 May, 1983.
17. **Abu-Gharbieh, W.A.** 1987. Plant parasitic nematodes associated with cereal and forage crops in Jordan. Pages 160-168. In: Nematodes parasitic to cereals and legumes in temperate semi-arid regions. M.C. Saxena, R.A. Sikora and J.P. Srivastava (Editors). ICARDA-135, Proceedings of a workshop held at Larnaca, Cyprus, 1-5 March.
18. **Abu-Gharbieh, W.I. and S.A. Tamimi.** 1982. Reaction of wheat and triticale cultivars to the wheat gall nematode and covered smut in Jordan. Dirasat, Research Journal, University of Jordan, Agricultural Studies, Vol. IX (1): 91-96.
19. **Al-Ahmed, M.** 1987. The status of plant-parasitic nematodes in cereals and food and forage legumes in Syria. In: Nematodes parasitic to cereals and legumes in temperate semi-arid regions. M.C. Saxena, R.A. Sikora and J.P. Srivastava (Editors). ICARDA-135, Proceedings of a workshop held at Larnaca, Cyprus, 1-5 March.
20. **Al-Azzeh, T.K.** 2002. Host-Parasite Relationship and Control of the Citrus Nematode *Tylenchulus*

semipenetrans Cobb in Jordan. Ph.D. Thesis, Faculty of Agriculture, University of Jordan, Amman, Jordan.

21. **Al-Beldawi, A. S., A. Jawad, R. Shally, A. K. Darweash, N.Y. Al-Talib, S. M. Nimir and A. H. Al-Saffy.** 1988. A preliminary study on the role of the fungus *Dilophospora alopecuri* and the nematode *Anguina tritici* in the development of the twist of cereals disease in Iraq. Arab Journal of Plant Protection, 6: 7-12.
22. **Al-Hazmi, A.S.** 1988a Relative host suitability of corn and alfalfa cultivars to *Meloidgyne javanica*. Pakistan Journal of Nematology, 6: 101-105.
23. **Al-Hazmi, A.S.** 1988b Relative reproductive rate of *Pratylenchus penetrans* on selected cultivars of alfalfa and corn. Arab Journal of Plant Protection, 6: 50-53.
24. **Al-Hazmi, A.S., Z.M. Abul-Hayja and I.Y. Trabulsi.** 1983. Plant parasitic nematodes in al-Kharj region of Saudia Arabia. Nematologia Mediterranea, 11: 209-212.
25. **Al-Hazmi, A.S., F.A. Al-Yahya and A.T. Abdul-Razig.** 1995. Occurrence, distribution and plant associations of plant nematodes in Saudi Arabia, Research Bulletin No. (52), Agriculture Research Center, King Saud University. Pages 5-45.
26. **Al-Hazmi, A.S., F.A. Al-Yahya and M.A. El-Saedy.** 1988a. Effect of sewage water on the penetration and development of *Tylenchulus semipenetrans*. Nematologia Mediterranea, 16: 225.
27. **Al-Hazmi, A.S., F.A. Al-Yahya and M.A. El-Saedy.** 1988b. Effect of four fungi isolated from treated sewage water on population development, of *Tylenchulus semipenetrans*. Nematropica, 18: 93-97.
28. **Al-Hazmi, A.S., A.A. Ibrahim and A.T. Abdul–Razig.** 1994. Occurrence, morphology and reproduction of *Heterodera avenae* on wheat and barley in Saudi Arabia. Pakistan Journal of Nematology, 12: 117-129.
29. **Al-Hazmi, A.S., A.A. Ibrahim and F.A. Al-Yahya.** 1999. Development of the cereal cyst nematode on wheat and barley under field conditions in central Saudi Arabia. J. King Saud Univ., Agric. Sci., 11: 39-46.
30. **Allow, J. M. and Z. A. Katcho.** 1967. Nematode infestation of sugar cane in Iraq. Plant Disease Reporter, 51: 809.
31. **Al-Masoum, A.A., A.A. Hashim, A. Al-Asaal and K. Jaafer.** 1998. Solarization for pest management in hot arid lands. Pages 630-639. In: Soil Solarization and Integrated Management of Soilborne Pests. James J. Stapleton, James E. De Vay and Clyde L. Elmore (Editors). FAO Plant Production and Protection Paper 147. Rome. 657 pp.
32. **Al-Obaedi, J.F.W., A.R. Askari and Z. A. Stephan.** 1987. Some plant extracts for the control of the root-knot nematode *Meloidogyne javanica*. Nematologia Mediterranea, 15: 149-153.
33. **Al-Qasem, M.S. and W.I. Abu-Gharbieh.** 1995. Occurrence and distribution of the citrus nematode *Tylechulus semipenetrans* in Jordan. Nematologia Mediterranea, 23: 335-339.
34. **Al-Saaedy, H.A. and Z.A. Stephan.** 1986. Root Knot Nematodes on eggplant in Iraq. Nematologia Mediterranea, 14: 283-284.
35. **Al-Saaedy, H.A., Z.A. Stephan and M.M. Girgees.** 1989. Effect of *Meloidogyne javanica* on eggplant seedlings of different ages. Nematologia Mediterranea, 17: 31-32.
36. **Al-Sabie, R.F., and S.N. Ami.** 1990. Identification of races of root-knot nematodes *Meloidogyne* spp. In northern Iraq. Arab Journal of Plant Protection, 8:83-87.
37. **Al-Samarria, F.H., F.A. Al-Rawi and A.H. El-Bahadli.** 1988. Reinfestation of soil after different disinfestation treatments. Arab Journal of Plant Protection, 6: 113-118.
38. **Al-Talib, N.Y., A.K. Al-Taae, S.M. Nimer, Z.A. Stephan and A.S. Al- Beldawi.** 1986. New record of *Anguina tritici* on barley from Iraq. International Nematology Network Newsletter, 3: 25-27.
39. **Al-Yahya, F.A.A.** 1998. The most prevalent and damaging plant parasitic nematodes in the Kingdom of Saudi Arabia during the last 40 years (1957-1997): Evaluation study. Alexandria Science Exchange, 19: 67-92.
40. **Al-Yahya, F.A.A.** 1999. Plant nematodes associated with crop plants in Unayzah Governorate, Central of Saudi Arabia, J. King Saud Univ., Agric. Sci., 11: 59-69.
41. **Al-Yahya, F.A., A.A. Al-Derfasi, A.S. Al-Hazmi, A.A. Ibrahim and A.T. Abdul-Razig.** 1998. Effects of cereal cyst nematode on growth and physiological aspects of wheat under field conditions. Pakistan Journal of Nematology, 16: 55-62.
42. **Al-Yahya, F.A., A.S. Al-Hazmi and A.T. Abdul-Razig.** 1999. Plant nematodes associated with non-crop plants in Onyzah, central province of Saudi Arabia. Arab Jounral of Plant Protection, 17: 77-83
43. **Amin, A.W. and M.M.A. Youssef.** 1998. Effect of organic amendments on the parasitism of *Meloidogyne javanica* and *Rotylenchulus reniformis* and growth of sunflower. Pakistan Journal of Nematology, 16: 63-70.
44. **Ammati, M.** 1987. Nematode status on food legumes and cereals in Morocco. Pages 169-172. In: Nematodes parasitic to cereals and legumes in temperate semi-arid regions. M.C. Saxena, R.A. Sikora and J. P. Srivastava (Editors). Proceeding of a workshop held at Larnaka, Cyprus, 1-5 March. 217 pp.
45. **Anter, E.A.M.** 1989a. Response of some biological activities of *Meloidogyne javanica* on certain varieties of pea, *Pisum sativum* L. Assiut Journal of Agriculture Sciences, 20: 303-311.
46. **Anter, E.A.M.** 1989b. Susceptibility of certain cultivars of potato *Solanum tuberosum*, to the infection with *Meloidogyne javanica*, Assiut Journal of Agriculture Science, 20: 295-300.
47. **Awad, N.G.H., A.M.E. El-Toony, M.F.I. Tadrous and M.A.I. Khalil.** 1997. Efficacy of root exudates and extracts of tomato, garlic and onion on *Fusarium oxysporum f.sp. lycopersici*, *F. oxysporum* f.sp. *cepae* and *Meloidogyne incognita*. Journal of Agriculture Science, Ain Shams University, Cairo, 5: 105-120.
48. **Awad, N.G.H., M.F.I. Tadrous, A.M.E. El-Toony and M.A.I. Khalil,** 1997. Association of tomato with garlic or onion for controlling Fusarium wilt and basal rot fungi and root knot nematode. Journal of Agriculture Science, Ain Shams University, Cairo, 5: 89-103.
49. **Badra, T. and M.M. Khattab.** 1982. Chemically-induced resistance to *Rotylenchulus reniformis* by ethephon growth regulant and relevant pathometabolites in mango seedlings. Nematologia Mediterranea, 10: 49-56.
50. **Badra, T., M.M. Khattab and G. Stinop.** 1980. Influence of sub-and supra-optimal concentrations of some growth regulators on growth of guava, phenol

status, nitrogen concentration and numbers of *Meloidogyne incognita*. Nematologica, 26: 157-162.

51. **B'Chir, M.M. and N. Namouchi.** 1988. Effect of *Bacillus pimulus* on *Monacrosporium salinum*, a nematode trapping fungus. Revue de Nematologie, 11 (2): 263-266.
52. **Bostrom, S.** 1985. A new species of *Zeldia thorne* (Nematoda: Cephalobidae) from Tunisia. Nematologia Mediterranea, 13: 67-71.
53. **Dabaj, K.H. and E.A. Edongali.** 1994. Population density of citrus nematode *Tylenchulus semipenetrans* on different citrus rootstocks under field conditions of Libya. Arab Journal of Plant Protection, 12: 26-29.
54. **Dabaj, K.H. and G. Jenser.** 1987. List of plants infected by root knot nematodes in Libya. Int. Nematol. Network Newsletter, 4: 28-33.
55. **Dabaj, K. and M.W. Khan.** 1986. Efficacy of certain systemic nematicides for the control of root-knot nematodes under glass house conditions. Libyan Journal of Agriculture, 11: 115-120.
56. **Dabaj, K.H., N.A. Khweildi, T.M. Mohammad and E.A. Edongali.** 1996. Evaluation of the sensitivity of some tomato and eggplant cultivars to root-knot nematode *Meloidogyne javanica* under Libyan field conditions. Arab Jounral of Plant Protection, 14: 44-46.
57. **Eddaoudi, M., M. Ammati and A. Rammah.** 1997. Identification of the resistance breaking populations of *Meloidogyne* on tomatoes in Morocco and their effect on new sources of resistance. Fundam. Appl. Nematol., 20: 285-289.
58. **Edongali, E.A.** 1989. Plant parasitic nematodes associated with olive trees in Libya. Internation Nematology Network Newsletter, 6: 36-37.
59. **Edongali, E.A. and K.A. Ben-Othman.** 1988. Needle nematode *Paralongidorus pisi* in Libya. International Nematology Network Newsletter, 5: 22.
60. **Edongali, E.A. and S.H. El-Majberi.** 1988. Plant parasitic nematodes associated with citrus plantations in Libya. Pakistan Journal of Nematology, 6: 23-24.
61. **Edongali, E.A. and A.K. El-Malih.** 1988. *Pratylenchus thornei* on almond in Libya. International Nematology Network Newsletter (USA), 5: 44.
62. **Eissa, M.F.M.** 1987. Loss estimation for winter season cereal and legume crops due to plant parasitic nematodes and complex diseases in Egypt. Pages 147-153. In: Nematodes parasitic to cereals and legumes in temperate semi-arid regions. M. C. Saxena, R. A. Sikora and J. P. Srivastava (Editors). Proceedings of a workshop held at Larnaca, Cyprus, 1-5 March.
63. **EL-Hamawi, M.H. and M.M.A. Youssef.** 1997. Redescription of Egyptian population of *Hirschmanniella oryzae* by using digital image processing work station. Pakistan Journal of Nematology, 15: 7-14.
64. **El-Maleh, A. and Z. Edongali.** 1995. Plant Parasitic nematodes associated with grape vine in Libya. Pakistan Journal of Nematology, 13: 77-81.
65. **El-Sherif, A.G. and M.A. EL-Wakil.** 1991. Interaction between *Meloidogyne incognita* and *Agrobacterium tumefaciens* or *Fusarium oxysporum f. sp. lycopersici* on tomato. Journal of Nematology, 23: 239-242.
66. **Farahat, A.A., A.M. Kheir and S.K. Abadir.** 1991. Studies on the CCN, *Heterodera zeae* in Egypt. 3-post infection development of four populations of the corn cyst nematodes, *Heterodera zeae* on corn. Bulletin of Faculty of Agriculture, Cairo University (Egypt), 39:373-379.
67. **Fattah, F.A.** 1988. Chitinolytic activity of fungi associated with females and eggs of the citrus nematode, *Tylenchulus semipenetrans*. Journal of Agriculture and Water Resources Research, Plant Production, 7: 1-9.
68. **Greco, N., M. DiVito, M.V. Reddy and M.C. Saxena.** 1984. A preliminary report of survey of plant parasitic nematodes of leguminous crops in Syria. Nematologia Mediterranea, 12: 87-93.
68. **Greco, N., M. DiVito, M.V. Reddy and M.C. Saxena.** 1986. Effect of mediterranean cultivated plants on the reproduction of *Heterodera ciceri*. Nematologia Mediterranea, 14: 193-200.
70. **Greco, N., M. DiVito and M.C. Saxena.** 1991. Soil solarization for control of *Pratylenchus thornei* on chickpeas in Syria. Pages 182-187. In: Soil Solarization. J.E. DeVay, J.J. Stapleton and C.L. Elmore (Editors). FAO Plant Production and Protection Paper 109. Rome. 396 pp.
71. **Greco, N., M. DiVito, M.C. Saxena and M.V. Reddy.** 1988a. Effect of *Heterodera ciceri* on yield of chickpea and lentil and development of this nematode on chickpea in Syria. Nematologica, 34: 98-114.
72. **Greco, N., M. DiVito, M.C. Saxena and M.V. Reddy.** 1988b. Investigation on the root-lesion nematode *Pratylenchus thornei* in Syria. Nematologia Mediterranea, 16: 101-105.
73. **Hanounik, S.B., H. Halila and M. Harrabi.** 1986. Resistance in *Vicia faba* to stem nematodes (*Ditylenchus dipsaci*). FABIS Newsletter, ICARDA. No. 16: 37-39.
74. **Hashim, Z.** 1979. A preliminary report on the plant-parasitic nematodes in Jordan. Nematologia Mediterranea, 7: 177-186.
75. **Hashim, Z.** 1983a. Plant-parasitic nematodes associated with pomegranate (*Punica granatum* L.) in Jordan and an attempt to chemical control. Nematologia Mediterranea, 11: 199-200.
76. **Hashim, Z.** 1983b. Plant parasitic nematodes associated with olive in Jordan. Nematologia Mediterranea, 11: 27-32.
77. **Hassan, H.M., A.M. Khalf-Allah, I.K.A. Ibrahim and H.M. Badr.** 1994. Free amino acids and oxidative enzymes in infested roots of tomato genotypes resistant and susceptible to *Meloidogyne incognita*. Nematologia Mediterranea, 22: 179-183.
78. **Husain, S.I., H.Y. Mohammad and A.J. Al-Zarari.** 1981. Studies on the vertical distribution and seasonal fluctuation of the citrus nematode in Iraq. Nematologia Mediterranea, 9: 7-19.
79. **Ibrahim, I.K.A.** 1987. Interaction between *Meloidogyne arenaria* and *M. incognita* on tobacco. Nematologia Mediterranea, 15: 287-291.
80. **Ibrahim, I.K.A.** 2002. Nematodes of Agricultural Crops. Munshaat Al-Maaref. Alexandria, 344 pp.
81. **Ibrahim, I.K.A., Z.A. Handoo and A.A. El-Sherbiny.** 2000. A survey of phytoparasitic nematodes on cultivated and non-cultivated plants in northern-west Egypt. Supplement to the Journal of Nematology, 32: 478-485.
82. **Ibrahim, S.K., A.T. Saad, P.P.J. Hydock and Y. Al-Masri.** 2000. Occurrence of the potato cyst nematode *Globodera rostochiensis* in Lebanon. Nematology, 2: 125-128.

83. **Ibrahim, I.K.A. and M.A. El-Saedy.** 1987. Development of *Meloidogyne incognita* and *M. javanica* in soybean roots. Nematologia Mediterranea, 15: 47-50.

84. **Ibrahim, I.K.A. and S.A. Kandeel.** 1986. Resistance of five timber tree species to root knot nematodes. Alex. J. Agric. Res., 31: 291-295.

85. **Ibrahim, I.K.A, H.A.A. Khalil and M.M. Rezk.** 1986. Population dynamics of the root knot nematode *Meloidogyne javanica* in northern Egypt. Alex. J. Agric. Res., 31: 317-325.

86. **Ibrahim, I.K.A., M.A. Rezk, M.A. El-Saedy and A.A.M. Ibrahim.** 1987. Control of *Meloidogyne incognita* on corn, tomato and okra with *Paecilomyces lilacinus* and the nematicide aldicarb. Nematologia Mediterranea, 15: 265-268.

87. **Ibrahim, I.K.A., M.A. Rezk and A.A. Ibrahim.** 1988a. Plant parasitic nematodes associated with gramineous plants in northern Egypt. Pakistan Journal of Nematology, 6: 31-37.

88. **Ibrahim, I. K. A., M. A. Rezk and A. A. Ibrahim.** 1988b. Resistance of barley and wheat cultivars to root-knot nematodes, *Meloidogyne* spp. Pakistan Journal of Nematology, 6:39-43.

89. **Ibrahim, I.K.A., M.A. Rezk and H.A.A. Khalil.** 1982a. Reaction of fifteen malvaceous plant cultivars to root-knot nematodes, *Meloidogyne* spp. Nematologia Mediterranea, 10: 135-139.

90. **Ibrahim, I.K.A., M.A. Rezk and H.A.A. Khalil.** 1982b. Effects of *Meloidogyne incognita* and *Fusarium oxysporum* on plant growth and mineral content of cotton, *Gossypium barbadense*. Nematologica, 28: 298-302.

91. **Ibrahim, I.K.A., M.A. Rezk and H.A.A. Khalil.** 1983. Resistance of some plant cultivars to root knot nematodes, *Meloidogyne* spp. Nematologia Mediterranea, 11: 189-192.

92. **Ibrahim, I.K.A., M.A. Rezk and H.A.A. Khalil.** 1986. Occurrence and host range of root knot nematodes *Meloidogyne* spp. in northern Egypt. Alex. J. Agric. Res., 31: 267-278.

93. **Ismail, A.E.** 1997. Population dynamics of root knot, spiral and stunt nematodes on sweet pop, *Annona squamosa* in relation to soil temperature. Pakistan Journal of Nematology, 15: 39-44.

94. **Ismail A.E.** 1998. Effect of soil amendments with some hardwood barks on reproduction of *Rotylenchulus reniformis* and growth of sunflower. Pakistan Journal of Nematology, 16: 137-144.

95. **Ismail, A.E., S.K. Abadir and A.M. Kheir.** 1996. Reproductive potential of *Heterodera zeae* on corn under field conditions. Pakistan Journal of Nematology, 14: 41-48.

96. **Ismail, A.E. and A.W. Amin.** 1997. Plant parasitic nematodes associated with cacti and succulent plants in botanic gardens of Egypt. Pakistan Journal of Nematology, 15: 29-37.

97. **Ismail, A.E. and M.F.M. Eissa.** 1993. Plant parasitic nematodes associated with ornamental palms in three botanic gardens. Pakistan Journal of Nematology, 11: 53-59.

98. **Ismail, A.E. and S.A. Hasabo.** 1995. Effect of root diffusates of some weeds in corn fields on the hatchability of corn cyst nematode, *Heterodera zeae*. Pakistan Journal of Nematology, 13: 41-46.

99. **Kassim, A.H. and S.I. Husain.** 1987. Screening of some tomato cultivars for their resistance to *Meloidogyne javanica* under Iraqi conditions. Int. Nematol. Network Newsletter, 4: 27-29.

100. **Katcho, Z.A.** 1972. First occurrence of certain root-knot nematode species in Iraq. Plant Disease Reporter, 56 (9): 824.

101. **Khan, M.W. and Z.A. Siddiqui.** 1986. Some comments on root-knot nematodes infecting vegetables in Libya. International Nematology Network Newsletter, 3: 18-20.

102. **Kinawy, M.M., A.M. Hammouda, M.H. Hussien and F. Abdel-Muhsin.** 1987. Potency of some nematicides for controlling nematodes and improving banana production in the southern region of Oman (Dhofar). Tropical Pest Management, 33: 119-121.

103. **Korayem A.M. and A.G. El-Sisi.** 1989. Iron and zinc as activator elements to oxamyl toxicity against the root-knot nematode *Meloidogyne incognita*. Pakistan Journal of Nematology, 7: 27-31.

104. **Koura, F.H.** 1986. Comparative histopathogenesis of some Egyptian cotton cultivars infected with *Hoplolaimus aegypti*. Egyptian Journal of Phytopathology, 18: 133-141.

105. **Koura, F.H. and M.M. Satour.** 1987. Interaction of *Hoplolaimus aegypti* with soil pathogenic fungi *Cephalosporium maydis* and *Fusarium moniliformae* in the root rot complex of maize. Annals of Agricultural Science, Ain Shams University, 32: 1849-1855.

106. **Lamberti, F.** 1984. Nematode problems of the mediterranean coastal stripe in the Syrian Arab Republic. Nematologia Mediterranea, 12: 53-64.

107. **Mahrous, M.E.** 1988. Host suitability of colocynth *Citrullus colocynthis* and some cucurbit crops to the root-knot nematode *Meloidogyne javanica*. Interantion Nematology Network Newsletter, 5: 4-5.

108. **Mahrous, M.E., A.A. Salem and M.S. Soliman.** 1989. Host suitability of certain cucurbit cultivars to the infection of two *Meloidogyne species*. Zagazig J. Agric. Res., 16: 153-159.

109. **Mamluk, O., W.I. Abu-Gharbieh, C.G. Shaw, A. Al-Musa and L.S. Al-Banna.** 1984. A Checklist of Plant Diseases in Jordan. Publication of the University, Jordan. 107 pp.

110. **Mani, A.** 1999. Surival of the root-lesion nematode *Pratylenchus jordanensis* Hashim. in a fallow field after harvest of alfalfa. Nematology, 1: 79-84.

111. **Mani, A. and M.S. Al-Hinai.** 1996. Plant-parasitic nematodes associated with alfalfa and fluctuations of *Pratylenchus jordanensis* population in the Sultanate of Oman. Fundam. Appl. Nematol., 20: 443-447.

112. **Mani, A. and M.S. Al-Hinai.** 1998. Toxicity of harmal *Rhazya stricta*, to *Meloidogyne incognita* and *Pratylenchus jordanensis*. Nematologia Mediterranea, 26: 27-30.

113. **Massoud, S.I., F.H. Abdel-Rahman and A.I. Ghorab.** 1988. Studies on *Heterodera daverti* on Egyptian clover *Trifolium alexandrium*. Nematologia Mediterranea, 16: 7-11.

114. **Montasser, S. A.** 1986. Resistance in tomato cultivars to the reniform nematode *Rotylenchulus reniformis*. Pakistan Journal of Nematology, 4: 79-82.

115. **Montasser, S.A.** 1990. Efficacy of certain vitamins in controlling the root-knot nematode, *Meloidogyne incognita* on tomato. Pakistan Journal of Nematology, 8: 101-105.

116. **Montasser, S.A.** 1991. The efficacy of some organic manures in controlling of root-knot nematode of okra. Pakistan Journal of Nematology, 9: 139-143.
117. **Montasser, S.A.** 1995. Reaction of certain flower bulb plants to root-knot nematode, *Meloidogyne incognita*. Pakistan Journal of Nematology, 13: 99-102.
118. **Montasser, S.A., A.A. Al-Sayed and H.A. El-Sh.** 1986. Susceptibility of fifteen tomato cultivars to the root-knot nematode, *Meloidogyne javanica*. Egypt. Journal of Phytopathology, 18: 149-152.
119. **Montasser, S.A., F.F. Moussa, M.M. A. Youssef, A. B. Aboul-Sooud and M.M.M. Mohammed.** 2002. Response of certain cultivars of sugarcane to infection by Pratylenchus zeae, the root-lesion nematode. Pakistan Journal of Nematology, 20: 47-55.
120. **Nakhla, F.G.A., E. Ismail and H.S. Aboul-Eid.** 1998. Effect of some organic and inorganic nitrogen fertilizers on growth and prodcutivity of balady orange trees in relation to infection of citrus nematode *Tylenchulus semipenetrans*. Pakistan Journal of Nematology, 16: 111-126.
121. **Nasr, T.A., I.K.A. Ibrahim, F.M. El-Azab and M.W.A. Hassan.** 1980. Effect of root-knot nematodes on the mineral, amino acid and carbohydrate concentrations of almond and peach root stocks. Nematologica, 26: 133-138.
122. **Natour, R.M., J.M. Allow and Z.A. Katcho.** 1975. The effects of DBCP on citrus root-nematode and citrus growth and yield in Iraq. Journal of Nematology, 7: 270-274.
123. **Osman, H.A. and F.H. Koura.** 1984. Reaction of maize cultivars to the attack of *Hoplolaimus aegypti*. Egyptian Journal of Phytopathology, 16: 79-84.
124. **Osman, H.A. and F.H. Koura.** 1985a. Effect of population density of *Hoplolaimus aegypti* on kenaf yield and nematode reproduction. Annals of Agric. Science, Ain Shams Univ., 30: 649-653.
125. **Osman, H.A. and F.H. Koura.** 1985b. Effect of growth regulators on growth and mineral composition of cotton plants infected with *Tylenchorhynchus microdorus*. Annals of Agric. Science, Ain Shams Univ., 30: 655-665.
126. **Osman, H.A., F.H. Koura, and R.O. Osman.** 1984. Influence of two growth regulators on growth and oil content of flax and the reproduction of *Tylenchorhynchus microdorus*. Egyptian Journal of Phytopathology, 16:85-90.
127. **Oteifa, B.A.** 1987. Nematode problems of winter season cereals and food legume crops in the Mediterranean region. Pages 199-209. In: Nematodes parasitic to cereals and legumes in temperate semi-arid regions. M.C. Saxena, R.A. Sikora and J.P. Srivastava (Editors). ICARDA-135, Proceedings of a workshop held at Larnaka, Cyprus, 1-5 March. 217 pp.
128. **Rezk, M.A. and G.I. Fegla.** 1986. Patterns of amino acids and amides in sweet melon plants infected with cucumber mosaic virus and root-knot nematode, *Meloidogyne javanica*. Alex. J. Agric. Res., 31: 265-274.
129. **Rezk, M.A., I.K.A. Ibrahim and A.A.M. Ibrahim.** 1987. Effect of root-knot nematodes on the phenolic contents of barley and wheat. Nematologia Mediterranea, 15: 259-263.
130. **Saadabi, A.M.** 1988. Plant parasitic nematodes associated with sugar cane at Kenana sugar estate of Sudan. International Nematology Network Newsletter, 5: 28-30.
131. **Saleh, H.** 1987. Occurrence of *Heterodera schachtii* in Jordan. Arab and Near East Plant Protectection Newsletter, 4: 16.
132. **Saleh, H.M. and F.A. Fattah.** 1990. Studies on the wheat seed gall nematode. Nematologia Mediterranea, 18:59-62.
133. **Salem, F.M., M.R. Abo-Elghar, H.S. Radwan and M.E. Sweelem.** 1984. Ecological studies on citrus nematode *Tylenchulus semipenetrans* in citrus orchards in Minufiya Governorate. Minufiya Journal of Agriculture Research, 8: 475-489.
134. **Satour, M.M., F.W. Riad and A.S. Abdel-Hamied.** 1991. Soil Solarization and control of plant parasitic nematodes. Pages 173-181. In: Soil solarization. J. E. DeVay, J. J. Stapleton, and C. L. El-more (editors). FAO, Plant Production and Protection Paper 109, Rome. 396 pp.
135. **Sauerborn, J. and M.C. Saxena.** 1987. Effect of soil solarization on *Orabanche* spp. infestation and other pests in faba bean and lentil. Pages 733-744. In: Proceedings of the 4th international symposium on parasitic flowering plants, ICARDA, Syria.
136. **Shohla, G.S., F.H. Abdel-Rahman and S. Masoud.** 1986. Susceptibility of five watermelon *Citrullus vulgaris* cultivars to the root-knot nematode *Meloidogyne incognita*. Bulletin of Faculty of Agriculture. University of Cairo, 37: 509-515.
137. **Siddiqui, Z.A. and M.W. Khan.** 1986a. Nematode problems of some fruit trees in Libya. International Nematology Network Newsletter, 3: 28.
138. **Siddiqui, Z.A. and M.W. Khan.** 1986b. Asurvey of nematodes associated with pomegranate in Libya and evaluation of some systemic nematicides for their control. Pakistan Journal of Nematology, 4: 83-90.
139. **Sikora, R.A.** 1978. Status of root-Knot nematodes *Meloidogyne* spp., in the Yemen Arabic Republic, Pages 50-57. In: Proceedings of First IMP Ressearch Plann. Conference on root-knot nematodes, *Meloidogyne* spp. Region VII, January 29 - February 2, 1978, Cairo Egypt, 85 pp.
140. **Stephan, Z.A.** 1987. Plant-parasitic nematodes on cereals and legumes in Iraq. Pages 155-159. In: Nematodes parasitic to cereals and legumes in temperate semi-arid regions. M. C. Saxena, R. A. Sikora, and J. P. Srivastava (Editors). Proceedings of a workshop held at Larnaka, Cyprus, 1-5 March, pp. 217.
141. **Stephan, Z.A.** 1988. Newly reported hosts of root-knot nematodes in Iraq. International Nematology Network Newsletter, 5: 36-43.
142. **Stephan, Z.A.** 1989a. Effect of organic ammendments, nematicides and solar heating on root-knot nematodes infecting eggplant. International Nematology Network Newsletter 6: 34-35.
143. **Stephan, Z.A.** 1989b. New hosts for *Ditylenchus dipsaci* in Iraq, International Nematology Network Newsletter, 6: 30.
144. **Stephan, Z.A., I.K. Al-Maamoury and A.H. Michbass.** 1991. The efficacy of nematicides, solar heating and the fungus *Paecilomyces lilacinus* in controlling root-knot nematode *Meloidogyne javanica* in Iraq. Pages 343-350. In: Soil solarization. J. E. DeVay, J. J. Stapleton and C. L El-More (Editors). FAO, Plant Production and Protection Paper 109, Rome. 396 pp.

145. **Stephan, Z.A., A.H. Alwan and B.G. Antone.** 1985. Occurrence of plant parasitic nematodes in vineyard soil in Iraq. Nematologia Mediterranea, 13:261-264.

146. **Taha, A.H.Y. and A.S. Kassab.** 1979. The histopathological reactions of *Vigna sinensis* to separate and concomitant parasitism by *Meloidogyne javanica* and *Rotylenchulus reniformis*. Journal of Nematology, 11: 117-123.

147. **Taha, A.H.Y. and S.A. Sultan.** 1983. The cellular responses of grape roots to the invasion of one or both of the nematodes *Meloidogyne incognita* and *Tylenchulus semipenetrans*. Arab Journal of Plant Protection, 1: 85-89.

148. **Tawfik, A.E., F.W. Riad and S.EL-Eraki.** 1983. Field spread of crown gall and root-knot nematode infection to peach rootstocks in Wady-el Mollake, Ismaelia. Agric. Res. Review, 61: 193-201.

149. **Tomaszewski, E.K., M.A. M. Khalil, A.A. El-Deeb, T.O. Powers and J.L. Starr.** 1994. *Meloidogyne javanica* parasitic on peanut. Journal of Nematology, 26: 436-441.

150. **Yassin, A.M.** 1987. The status of research on plant nematology in cereals and food and fodder legumes in the Sudan. Pages 181-191. In Nematodes parasitic to cereals and legumes in temperate semi-arid regions. M. C. Saxena, R. A. Sikora and J. P. Srivastava (Editors). Proceedings of a workshop held at Larnaka, Cyprus, 1-5 March. 217 pp.

151. **Yassin, M.Y. and A.E. Ismail.** 1993. Effect of *Zinnia elegans* as a mix crop along with tomato against *Meloidogyne incognita* and *Rotylenchulus reniformis*. Pakistan Journal of Nematology, 11: 31-35.

152. **Yousif, G.M.** 1979. Histological responses of four leguminous Crops infected with *Meloidogyne incognita*. Journal of Nematology, 11: 395-400.

153. **Youssef, M.M.A.** 1998. Population dynamics of plant parasitic nematodes associated with Mulberry in Egypt. Pakistan Journal of Nematology, 16: 95-102.

154. **Yossef, M.M.A. and W.A. Amin.** 1997. Effect of soil amendment in the control of *Meloidogyne javanica* and *Rotylenchulus reniformis* infection on cowpea. Pakistan Journal of Nematology, 15: 55-63.

155. **Yousef, D.M. and J.J.S. Jacob.** 1994. A nematode survey of vegetable crops and some orchards in the Ghor of Jordan. Nematologia Mediterranea, 22: 11-15.

156. **Zeidan, A.B. and E. Geraert.** 1990. *Helicotylenchus* from Sudan with descriptions of two new species (Nematoda: Tylen chida). Nematologia Mediterranea, 18:33-45.

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